

Municipal Journal

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OPERATING GALLERY, FROM HEAD OF MAIN ENTRANCE STAIRWAY.

NIAGARA FALLS FILTER PLANT

Municipal Plant Comprising Coagulating Basins, Filters and Filtered Water Reservoirs, Capacity Fifteen Million Gallons per Day.—Details of Filters.—Mixing and Applying Chemicals.—Efficiency of Plant.

In our issue of June 12 we published a description of the new municipal pumping plant constructed by the water works department of Niagara Falls, N. Y., together with some details of the activities of that department, and a statement of the beneficial results from purifying the water in the reduction of the typhoid death rate. This week we describe the filter plant. This plant consists of two one-million gallon coagulation and sedimentation basins, 16 filters, each with a capacity of one million gallons per day and 2 filtered water reservoirs having a combined capacity of half a million gallons. These are all below the level of the ground as obtained by embankment, the filtered water basins being under the filters, the sedimentation basins on either side of them. The operating gallery is in an annex to the main build-

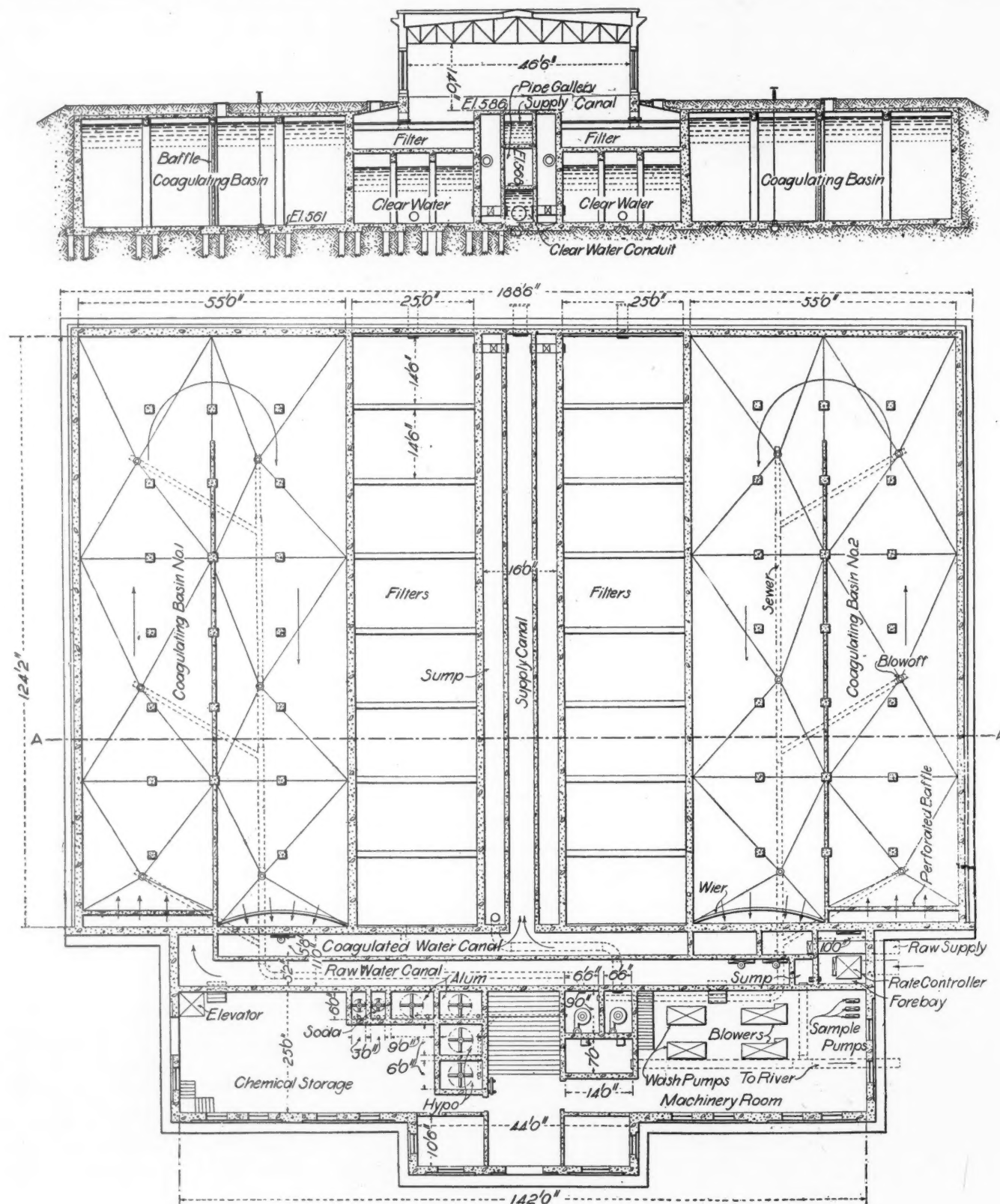
ing 46½ feet wide which extends over the entire line of the group of basins and filters. The filters are arranged in two lines, one on each side of a tier of pipe galleries and conduits, and about half of each line of filters is covered with the operating gallery annex, the other half of each filter extending underground beyond the building. Between the two rows of filters and the filtered water basins below them, are located a pipe gallery, a supply canal above it, and a clear water conduit below it.

Across the ends of these several basins and lines of filters extends the main building, which contains machinery rooms, chemical mixing and storage rooms, laboratory and offices. This main building is 142 feet long by 36 feet wide and is two stories high. The operating gallery annex is on the level of the second floor of the

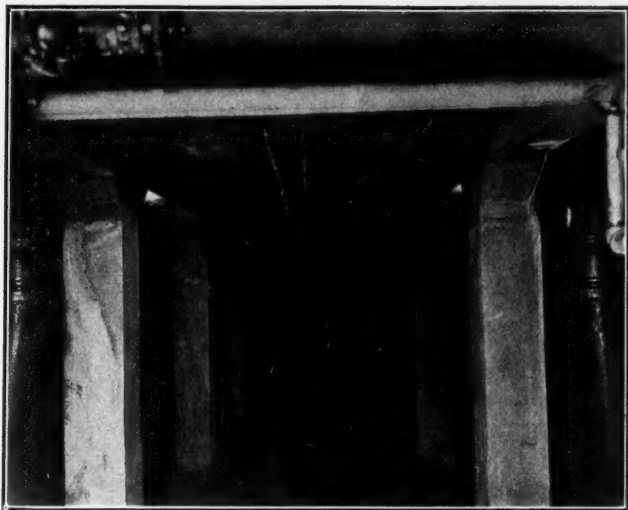
main building. The building is constructed of dark limestone ashlar with sandstone trimmings. The interior walls of the entrance hall and main stairway are of white enamel brick. Terrazzo floors are used practically throughout, and every effort has been made to keep the building absolutely clean and to give it a generally attractive, light and sanitary appearance, and the contractors (the Norwood Engineering Company) are to be congratulated for their success in this.

The general operation of the plant is as follows: Wa-

ter from the pumping plant enters either sedimentation basin through a baffle wall perforated with a number of circular openings to prevent concentrated currents. This basin, which is 124 feet long, 55 feet wide and 21 feet deep, contains on its centre line a baffle wall extending from the inlet end to within about 25 feet of the further end, which compels the entering water to pass down one side of the tank and back the other, where it leaves over a skimming weir having the form of a circular arc, and discharges into the coagulated water canal. The raw



GENERAL PLAN OF FILTRATION PLANT, AND SECTION ON AA.



PIPE GALLERY. PIPES AND VALVES AT THE RIGHT AND LEFT, OUTSIDE THE ARCHES.

water canal passes across the ends of both coagulating basins, and by regulation of gates, either or both of these basins can be used at once, or the effluent from the first can be passed through the second, thus using them in series. The coagulant—sulphate of alumina—is added to the raw water just before it enters the sedimentation basin; and more can be added between the first and second basin when they are used in series, should this be desired. The basins are cleaned by drawing off the sludge through a series of openings in the floor, flushing it into these by hose attached to brass nozzles which are built into the walls of the basin. Hypochlorite (provision for using it when necessary has been made) can be fed at five different places during the treatment of the water, the first of these being in the settling basins, the others being in the filtered water and in the washwater pump suction.

The coagulated water canal conducts the effluent from the sedimentation basins to the supply canal, from which it passes to any of the 16 filters at the will of the attendant. From the filters the water falls to the filtered water basins beneath them, and from these passes by valve-controlled pipes into the clear water conduit, from which it flows by gravity through cast iron pipe to the pumping station.

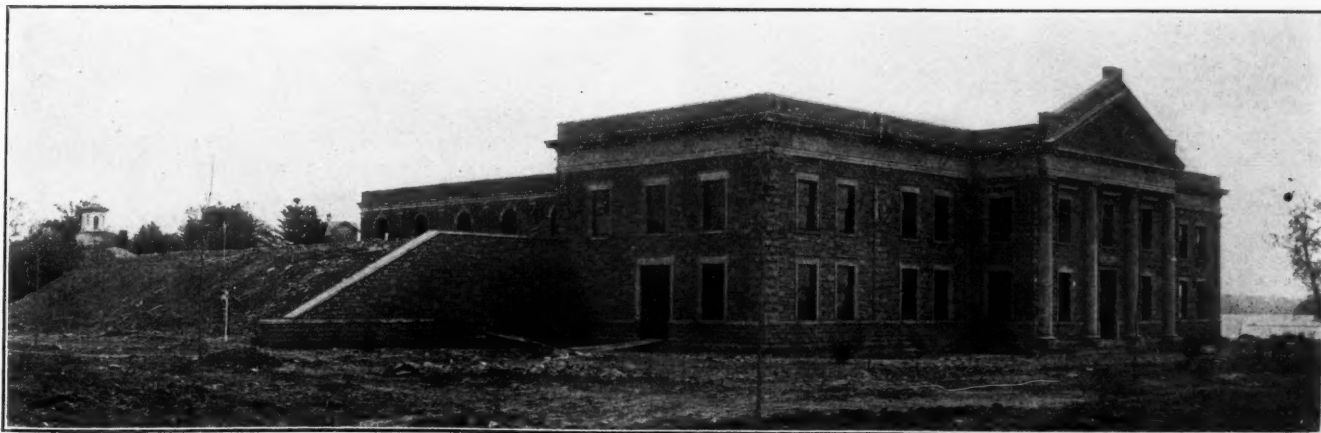
One of the features of the plant which is appreciated by the operating force is the unobstructed pipe gallery. As is shown in the photograph, all of the pipes and valves are outside of the gallery proper, in side galleries which extend from the level of the floor of the filtered

water basin to the floor of the operating gallery, the valves all being easily accessible from the pipe gallery through the openings between the supporting columns.

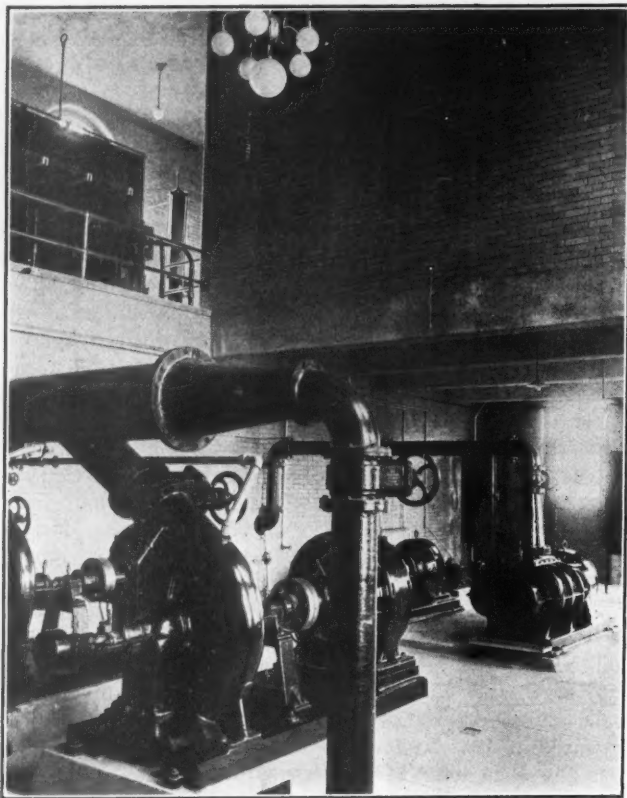
Each filter has a sand area of $14\frac{1}{2}$ feet by 25 feet, giving a rate of filtration of 120 million gallons per acre per day. The filtering medium is 30 inches depth of Cape May sand with an effective size of 0.35 mm. and a uniformity coefficient of about 1.6, resting upon 9 inches of gravel graded in size. Water from the sedimentation basin is admitted to the beds by a standard Norwood inlet feed controller, which consists of balanced valves operated by a pair of copper floats in the filters. This mechanism can be set to maintain any desired head of water on the sand. Side washwater gutters and a central washwater trough are provided for each filter. The water is drawn off through an under-drainage system consisting of a rectangular cast iron collector with 2-inch laterals spaced 10 inches apart, each lateral carrying at intervals of 6.02 inches a Wilson patent strainer. These strainers consist of brass tubes, each containing 36 slots each .017 of an inch wide and about three-fourths of an inch long. Resting on the top of the gravel is a manifold for supplying air during washing, which consists of three 2-inch brass pipes extending lengthwise of each bed, having lateral brass tubes which are slotted about quarter way down each side, through which slots the air escapes. The air and water are used simultaneously throughout the washing, which runs about seven minutes for each bed. The air is supplied under 3 pounds pressure by No. 3 Root blowers. Vortex pumps manufactured by the Lawrence Pump and Engine Company operated by Westinghouse induction motors, are used for supplying washwater under a pressure of 5 pounds, or, should this plant be out of service, water can be used from the city mains. The pumping plant is in duplicate, however, as is also the blower plant.

All valves used in operating and controlling the filters are controlled from the floor of the operating gallery. There are six such valves for each filter, these controlling the influent, effluent, and washwater, the air for washing, the refilling and re-wash. Filters are washed from once to twice a day, depending upon the loss of head. About $2\frac{1}{2}$ per cent. of the filtered water is used in washing the filters. Although the beds are rated at one million gallons, at the present time 15 beds are being used for filtering an average of $13\frac{1}{2}$ million gallons per day. They have been tested, however, up to 1½ million gallons per bed. The filter plant is operated by one man in the operating gallery during each of three shifts, a superintendent, a chemist and a janitor.

The coagulant solution is prepared in a concrete tank, from which it flows into one of two solution tanks



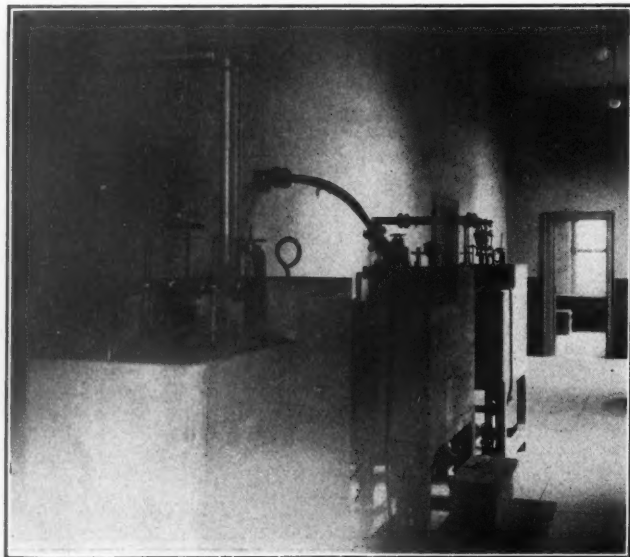
NIAGARA FALLS FILTRATION BUILDING.
Coagulating basin No. 1 under embankment at the left background.



FEED WATER PUMPS AND BLOWERS.

where the desired dilution is prepared, paddles operated by Westinghouse motors being used for stirring. A small Lawrence chemical pump raises the solution into a constant-level feed tank provided with an adjustable orifice which is protected by a perforated lead plate which prevents undissolved particles of lime from reaching the orifice. Similar orifice boxes are provided for hypochlorite and for soda ash, but it has not been found necessary to use the latter chemical, and owing to the nature of the water it probably will not be. Copper is used for valves, rods and pipes in handling the hypochlorite, and so far there has been no trouble from corrosion or other chemical effects.

A laboratory equipped with all the most improved apparatus for bacteriological analyses, and for the more important physical and chemical ones, is located on the



CHEMICAL DOSING TANKS.

upper floor of the main building. This laboratory is provided with a floor and walls of tile and with three windows giving abundance of air and light. Here the chemist in charge, B. T. Dignan, makes all the necessary analyses, three samples being taken each day. Analyses are made of the raw water and of the water after it has passed the filters and received the hypochlorite, which is applied to the effluent in the filtered water basin. No samples are taken of filtered water which has not received hypochlorite, and consequently the relative efficiency of the two in securing the purification is not known.

The salaries of the chemist and filter operators for 1912 amounted to \$3,282.25, and the supplies for the filter plant cost \$6,817.63. The estimate of the water department for the year 1913 includes \$8,324.72 for chemicals.

The bacterial efficiency of the plant is indicated by the following records for March, April and May of this year. As stated above, samples were taken of the raw water and the final effluent only, so that the relative effectiveness of sedimentation, filtration and sterilization is not known.

Averages for March. $1\frac{1}{4}$ grains of sulphate of alumina per gallon and $1\frac{1}{2}$ pounds hypochlorite of lime per million gallons. Bacteria in raw water 6,500; in effluent, 26.

Averages for April. $1\frac{1}{4}$ grains of sulphate of alumina, $1\frac{1}{4}$ pounds of hypochlorite. Bacteria in raw water, 2,800; in effluent, 28.

Averages for May. 1.1 grains of sulphate of alumina, 1 pound of hypochlorite. Bacteria in raw water 2,600; in effluent, 35. During this month analyses were also taken of the effluent from the sedimentation tank, where an average of 900 bacteria was found.

During these three months tests were made daily for B. Coli. The results were positive in 10 c.c. samples of filtered water only seven days out of the 92. B. Coli tests of the raw water were positive in 0.1 c.c. samples every day during that time.

The physical and chemical tests during April may be taken as representative, and these were as follows:

Raw water. Color, 5; odor, both hot and cold, vegetable; average turbidity, 12 (maximum 450); solids, 13 (maximum 178); free ammonia, .026; albuminoid ammonia, .086; nitrites, .001; nitrates, .10; oxygen consumed, 1.5; chlorine, 7; hardness, 97.2; alkalinity, 82.

Filter effluent. Color, trace; odor, vegetable; turbidity, clear; solids, 1.42; free ammonia, .03; albuminoid ammonia, .068; nitrites, .001; nitrates, .10; oxygen consumed, 0.8; chlorine, 7; hardness, 98.6; alkalinity, 73.

As stated in the June 12th description, the death rate has apparently been decreased about 84 per cent from the average of the previous five years as shown by figures furnished by the water company. The death rate for ten years from 1897 to 1907 had averaged 134.1, and the 1912 death rate was approximately only one-ninth of this; a saving every year of 40 lives and several hundred cases of sickness.

INDUSTRIAL CONSUMPTION OF WATER.

In a report to the New England Water Works Association, a committee on water consumption statistics and records calls attention to the desirability of separately recording domestic and industrial consumption. At Champaign-Urbana, Ill., the domestic consumption is only 15 gallons per capita, although the pumpage is 55 gallons, 18 being unaccounted for. In a Pennsylvania coal district city 82 per cent of the water accounted for is industrial consumption.

Amount and Costs of Catch Basin and Sewer Cleaning.—Cost and Construction Details of Laying Sewers by Municipal Force.

"The total number of catch basins to be cared for at present is about 872. Owing to the location of some of these on steep grades and the rapidity with which the road surface washes into the basins at time of rains, some of these catch basins have to be cleaned six or eight times each season. These catch basins must be kept clean, or the material which they might retain

During the year 10,259 feet of 8 and 10-inch sewer were constructed at a total cost of \$17,593.32; all but 442 feet of this being 8-inch and all but 370 feet of it being between 7 and 9 feet deep, the balance consisting of 250 feet with an average depth of 5.4 feet and 120 feet with an average depth of 6.7 feet. The cost of each section of sewer, the size of sewer, length, depth, and material excavated, are given in detail in the report in the form of a table which is reproduced herewith. The cost is itemized under engineering, labor, pipe, brick, castings, and sundries. The information thus given is much more complete and valuable than that ordinarily found in reports of this nature, where merely size, length, and total cost are given.

-**Cost of Construction.**[illegible]

CONFISCATION OF MILK BY HEALTH DEPARTMENTS.

The right of the Department of Health to destroy or confiscate milk without notification of the owner, and without giving him an opportunity to defend the purity of his product has never been tested legally, although it has at times been the subject of comment and discussion. The following decision, which was handed down May 12, 1913, by the Supreme Court of the State of Wisconsin upholds the Department of Health in such confiscation when milk is adulterated or below standard. As a matter of fact, at the present time the department confiscates and destroys only when milk is above a certain temperature or when it contains visible dirt, these two points being capable of immediate and satisfactory demonstration. In cases where adulteration is suspected, samples are taken and submitted to chemical analysis and, upon proof of adulteration, the dealer is prosecuted. The opinion of the Milwaukee court was delivered by Mr. Justice McKenna and affirmed the judgment of the Circuit Court for Milwaukee County, from which the plaintiff had appealed.

Justice McKenna stated, in part, as follows:

"The ordinance (of the City of Milwaukee) provides that no milk drawn from cows outside of the city shall be brought into the city, contained in cans, bottles, or packages, unless they be marked with a legible stamp, tag, or impression bearing the name and address of the owner of the cows, and unless such owner shall, within one year from the passage of the ordinance, file in the office of the commissioner of health a certificate of a duly licensed veterinary surgeon or other person given authority by the State Live Stock Sanitary Board to make tuberculin tests, stating that such cows have been found free from the tuberculosis or other contagious diseases. The certificate is required to give a number which has been permanently attached to each cow and a description sufficient for identification. The certificate must be renewed annually, and must show that the cows are free from tuberculosis or other contagious diseases. * * * Bading, as commissioner of health of the city of Milwaukee, threatens, * * * to execute the ordinance, and confiscate, forfeit, and destroy all milk shipped by plaintiff and other producers to be sold in Milwaukee contrary to the requirements of the ordinance, unless restrained." The plaintiff contended that the provision of the ordinance which requires milk that did not conform to its requirements to be confiscated, forfeited, and immediately destroyed, took his property without due process of law. Regarding this contention Justice McKenna stated: " * * * he assumes the purity of his milk, though it has not been tuberculin tested, and then asserts that 'milk of this kind cannot be confiscated and destroyed simply because it is not accompanied with a certificate of a veterinary surgeon or of some person authorized by the Live Stock Sanitary Board of the State of Wisconsin, as provided by said ordinance, certifying that the tuberculin test has been applied.' But plaintiff overlooks the allegation of his complaint. His allegation is not that his cows are free from infectious or contagious diseases, but only 'so far as he is able to learn or discover.' And the allegation of his willingness to withdraw tainted milk from sale depends upon the same contingent knowledge or information. He overlooks also the findings of the courts against the sufficiency of his information, and their demonstration of the necessity of the tests established by the ordinance. But even if the necessity of the tests be not demonstrated and the beliefs which induced them may be disputed, they cannot be pronounced illegal. In *Laurel Hill Cemetery vs. San Francisco*, 216 U. S., 358, 54 L. ed. 515, 30 Sup. Ct. Rep., 301, we expressed the deference which must be accorded

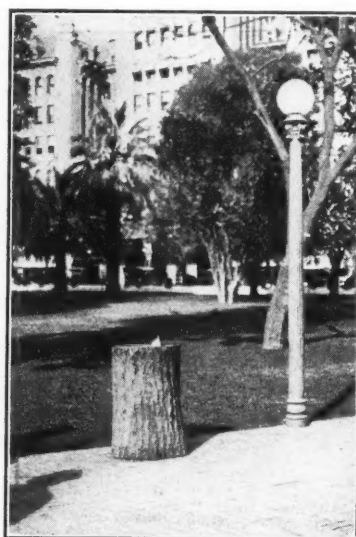
to local beliefs, saying that we would not overthrow an exercise of police power based on them to protect health merely because of our adherence to a contrary belief. It will be observed, therefore, that the contention of plaintiff is without foundation, and that the ordinance is not an arbitrary and unreasonable deprivation of property in a wholesome food, but a regulation having the purpose of and found to be necessary for the protection of the public health.

"The police power of the state must be declared adequate to such a desired purpose. It is a remedy made necessary by plaintiff acting in disregard of the other provisions of the ordinance, that is, failing to have his cows tested and their milk authenticated, as prescribed. The City was surely not required to let the milk pass into consumption and spread its possible contagion. This seems to be the alternative for which plaintiff contends, and might occur." * * *

"We agree with the court that the destruction of the milk was the only available and efficient penalty for the violation of the ordinance. The case, therefore, comes within the principle of the cases we have cited and of *New York ex rel. Lieberman vs. Van De Carr*, 199 U. S. 552, 50 L. ed. 305, 26 Sup. Ct. Rep. 144. In other words, as the milk might be prohibited from being sold, at the discretion of the board of health, and even prohibited from entering the city (*Reid vs. Colorado*, 187 U. S. 137, 47 L. ed. 108, 23 Sup. Ct. Rep. 92, 12 Am. Crim. Rep. 506), a violation of the conditions upon which it might be sold involves as a penalty its destruction."

RUSTIC WASTE CANS.

One of the small details that make for artistic effect in a city square is shown in this view from Central Park,



Los Angeles. It will be noted that the trash receptacle is not an unsightly tin box but has the appearance of a rough gray section of a tree trunk. It is artificial, of course, but a very good imitation, and it is by no means an eyesore as an ordinary trash can would be. The "tree trunk" is fitted with a removable can which can be lifted out and emptied, thus saving the outer decorative (and heavier) receptacle from being marred in handling.

CO-OPERATION OF M. I. T. AND HARVARD.

An arrangement has just been announced for inaugurating the much-talked-of co-operation between the Massachusetts Institute of Technology and Harvard University, by giving a course in which both colleges shall join, which shall prepare students for health work in two years. Tech has for more than twenty years offered a four-year course in biology, and Harvard gives a special course in health work to graduate physicians, both of which courses will be continued for the thorough preparation of sanitary engineers and physicians. The new course will offer instruction by Prof. Geo. C. Whipple of Harvard (a Tech graduate) and Prof. Sedgwick of Tech; also the Harvard medical school and hospital experience.

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CHANGE OF ADDRESS
Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JUNE 26, 1913.

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Fire Hydrant Spacing.

We have previously presented figures and arguments in favor of so locating fire hydrants that the average distance between them will not exceed 350 or 400 feet. Five hundred feet is fairly satisfactory, and a number of cities are approximating this in the spacing of their hydrants. Of several hundred cities served by municipal water works, data for which were given in our June 12th issue, the average ratio between the number of hydrants and feet of water main is one hydrant to each 585 feet.

From the figures of cities served by private water works plants, however, we find that the hydrants average one to each 761 feet. Considering the number of cities going to make up these averages, and the wide territory over which they are spread, it would seem as though the reason for this difference must be some condition of private or municipal ownership; and it seems probable that it can be found in the fact that in the majority of cities the payment made to the water company by the city for the fire protection furnished is on the basis of an annual payment for each fire hydrant, the city having the decision as to where and how many fire hydrants shall be placed; and in order to save money to the taxpayers they have kept the number of fire hydrants lower than was desirable for effective fire protection. In a few franchises it is stipulated

that the city shall locate and pay for one fire hydrant for every 500 feet of mains laid by the company; and if the absence of such a clause is resulting in reducing the number of fire hydrants to 25 to 50 per cent less than is desirable, such a clause should be included in every franchise.

As a matter of fact, the idea of basing the payment of a water works company for fire protection on the number of fire hydrants furnished is not a scientific one, and the objection to this practice which was just referred to is not the only one. The real service which the company renders lies in the provision which it makes through its mains, standpipes, pumps, etc., for concentrating instantly at any given point a large amount of water for fire fighting, and the hydrant is but a small part of this provision. The basis of payment should be on the total service and not on the hydrants only. It probably would not be worth while to develop a complicated method of calculating the amount which the company would be entitled to on this line of reasoning, although this has been done several times, but it would be an approximation to such logical basis to base the payment upon the number of feet of mains laid, or upon the area protected on a predetermined basis of main capacity per acre. If a provision be inserted in the franchise that a fire hydrant be placed for every 400, 450 or 500 feet of mains laid, then the number of fire hydrants becomes in effect a measure of the number of feet of mains, and so payments based on the number of fire hydrants, would in reality be based on the length of the distribution system.

The point which we wish to bring out, however, is that payment at so much per fire hydrant, leaving it to the city officials to determine how many fire hydrants shall be installed, is not fair to the company, and is too much of a temptation to the officials to save in such annual payments to the detriment of effective fire protection.

Chattanooga Refuse Collection Notes.

The Department of Streets and Sewers of Chattanooga, Tenn., has charge of cleaning, repairing and constructing sewers, bridges and viaducts; the collection of garbage and other refuse, and the cleaning, sprinkling and general maintenance of streets.

During the year A. N. Sloane, the commissioner in charge of this department introduced the system of depositing street sweepings at once in covered cans, instead of leaving them in piles upon the roadway. An auto truck carries away the filled cans and leaves empty ones in their place. This was considered much more sanitary and less objectionable from every point of view. He also enforced the ordinance requiring property owners to deposit garbage in covered metal cans, over 1,800 cans being purchased by the citizens for this purpose. To the better protection in this way of garbage and street sweepings he attributed to a large extent the noted absence of flies on the streets during the summer of 1912.

Mr. Sloane reports as one of the most interesting and important of his expenditures last year that of \$1,959 for equipping and maintaining a blacksmith shop. A blacksmith and assistant were employed in the shop, with adequate tools, who did all the shoeing and repair work and built two wagons for the department. Each wagon was carefully examined every day and any needed repairs made immediately so that all were kept in commission continuously, and at the end of the year the entire equipment was in a better physical condition than when the year opened. Among other work done was the overhauling of eight sprinklers, work which previously had been done at outside shops at considerable expense to the city.

NEWS of the MUNICIPALITIES

Current Subjects of General Interest Under Consideration

by City Governments and Department Heads

ROADS AND PAVEMENTS

Famous Narrows Road Completed.

Altoona, Pa.—Automobilists will be interested to learn that the famous state road through the Lewistown Narrows is now completed and thrown open for public use. The road is seven miles long and is said to be the finest stretch of road in Pennsylvania and also the costliest. It was built through a very difficult section and required much grading and blasting, and the long period occupied by the work gave ample time for settling thoroughly before the final surfacing was put on.

Municipal Asphalt Plant in Operation.

Camden, N. J.—Camden's municipally owned asphalt plant has been formally put in operation, and if expectations are realized the city will hereafter be enabled to do its own street asphalt paving at a cost of from 30 to 40 cents a square yard less than has been paid to paving corporations. There is an abundance of work before the operators of the new plant, not only in paving streets that have long been neglected but in making repairs to others, the guarantees of whose builders are about to expire.

Signboards Being Placed by Goodrich Company.

Dallas, Tex.—The Goodrich Tire Company has about completed its work of placing signboards between Dallas and San Antonio, the route, as surveyed by the company, leading via Fort Worth, Waco, Austin. Signs have been placed at all of the crossroads on this route, which signs give information of value, such as distance to the next town, which road to take, etc.

Endurite Resists Heavy Traffic.

Boston, Mass.—Endurite, a paving material laid by the Warren Bros. Company, designed to combine much of the stability of a bitulithic mixture with the economy of a sand aggregate in the wearing surface was laid last year on Commonwealth avenue. It is the largest continuous area of the material so far laid. As shown by the illustration the pavement is practically perfect. This is interesting because the pavement is heavily traveled by ve-



ENDURITE PAVING ON COMMONWEALTH AVE., BOSTON.

hicles travelling in one way only. This travel is so heavy that it has already practically worn out a section of bituminous concrete "open mixture," laid adjoining it at the same time.

City Paving Progressing.

Milwaukee, Wis.—The laying of the concrete base for the paving on Wells street is about completed, according to Superintendent of Street Construction Blodgett. The pavers are laying blocks on that street between Third and Fourth streets, and the Chicago and Milwaukee electric road is laying blocks in the track zone. The Milwaukee-Northern has raised its tracks to grade between Fifth and Sixth streets, and Wells street, between Second and Sixth streets is to be completed within a week if weather conditions permit. Second street, between Sycamore street and Grand avenue, is completed except for the stone paving surface, and the Milwaukee-Northern has raised its tracks to grade on that street north of Grand avenue. "Our work," said Mr. Blodgett, "involved the laying of nine miles of pipes and conduits and one and one-half miles of pavement."

Will Award Prizes for Good Roads.

Fort Dodge, Ia.—Any organization preparing the best six miles of road to Fort Dodge, on or before July 15 will be awarded a prize by the Fort Dodge members of the Webster County Good Roads Association. Five hundred dollars is to be divided into three sums, \$275, \$150 and \$75. This is the latest move to arouse interest in good roads into Fort Dodge, undertaken by the association. The only requirement is that at least four organizations compete. Already farmers along the most traveled approaches to town are getting busy. Along the Hawkeye highway, the Otho short line and west and south of town work has begun. The state highway commission with the Webster county engineers will act as judges. After the decision there will be a big booster banquet. Engineer G. P. Smith stands ready to aid with practical help and suggestions for the bettering of the approaches to town.

Favor Auto Taxing Road Scheme.

Fargo, N. D.—Governor Hanna's plan of issuing bonds, paying the interest from an automobile tax, increasing the latter from \$3 to \$5 per year, so a part of the principal can be used each year, is generally indorsed by advocates of good roads in this state. The plan overcomes many of the objections advanced against other suggestions for raising funds for good roads in that it makes the automobiles pay for the entire improvement. The fact that it eliminates the protests of the farmers who object to special taxation for road purposes is expected to be a strong feature in securing its adoption. Despite their vital interest in good roads, most farmers of the state strenuously object to an increase in road taxation. Educational campaign for good roads has never been very systematically worked up and it will take some time to create sentiment favorable to direct taxation.

Work Progresses on Sidewalk Contracts.

Fort Wayne, Ind.—The various contractors on public sidewalk work are making a good headway. The firm of Gallagher & Ryan have completed the sidewalks on Lavinia street from Fairfield avenue to Broadway and on the east side of Fairfield avenue from Jefferson street to Wayne street. The firm is now working on the contract on East Washington street, both sides from Harmer street

to Glasgow avenue. The Wayne Construction Company have completed the sidewalks on the west side of Thomas street from Buchanan street to Creighton avenue, and are now constructing walks on both sides of Williams street from Lafayette street to Calhoun street. The firm of J. B. & Edw. Grosjean have completed sidewalks on the south side of Lake avenue from Crescent avenue to Walton avenue and are at the present time constructing walks on East Wayne street from Harmer street to Walton avenue. The Brooks Construction Co. are working on their contract for sidewalks on Broadway, both sides, from Wall street to Home avenue and on the east side from Home avenue to Nuttman avenue. The Moellering Construction & Supply Co. have completed walks on Eckhart street from Hanna street to Smith street.

Last of Granite Replaced With Wood.

Louisville, Ky.—City Engineer David R. Lyman has been notified that the work of treating with creosote, the wooden blocks to be used in paving Fourth street from Market to Jefferson and Main street from Fourth to Fifth streets, will be begun at Grenada, Miss. This will consume about five days. As soon as the Board of Public Works ascertains that the blocks have been shipped, the contractors will be notified to begin tearing up the granite on these two blocks. The board believes that the new paving will be laid by the middle of July at the latest. When the blocks on Fourth street have been completed, the last of the noisy granite paving in the heart of the retail district will have been supplanted with either wooden block or asphalt.

September to See End of Hump.

Pittsburgh, Pa.—Director Joseph G. Armstrong has announced that all the Hump work would be completed by September 1, two months earlier than it was thought, when the contract was awarded, that the contractors would get through with the job. They are at least two months ahead of their schedule.

Work of Paving Carrera Street Started.

St. Augustine, Fla.—Work upon the paving of Carrera street, from Cordova to Malaga, with asphalt macadam has been begun by Seth Perkins, Jr., who holds the contract. The paving work is in charge of J. L. Crary. The street is being grouted, preparatory to grading for the paving and the work will be rushed with all possible speed. Carrera is one of the prettiest residence streets in the city and there will be nothing lacking in its attractiveness when the asphalt macadam is down, as that paving has already proven its worth in both durability and efficiency in St. Augustine.

Inspect Grayson County Roads.

Sherman, Tex.—County Judge J. Q. Adamson and the county commissioners made an automobile trip over the roads under construction in the Sherman good roads district. Nearly the entire day was spent on them. The officials stated that the work is progressing nicely and is of a good quality. It is estimated that it will take four months to complete the job. When completed there will be 77 miles of macadam roads in the in the district, 12 miles of which will be in the city limits of Sherman.

Street Over Mine Caves In.

Scranton, Pa.—Pittston avenue for a half block, beginning at Gibbons street, dropped six feet at 10 o'clock one night last week as the result of a settling in the workings of the National mine of the Lackawanna company. Gibbons street also went down from four to six feet for a half block east of Pittston avenue. Street car traffic on the South Scranton and Moosic lines was tied up, passengers having to walk a block to pass the affected area. One house at the intersection of the damaged streets was partially wrecked. Gas mains were broken. A number of front yards and fences were damaged, several cellar walls cracked and total damages, estimated at \$10,000, were caused by "settling." The police and firemen guarded the streets and assisted several families to move to other streets. The "settling" had been

going on for several hours and the big drop came at 10 o'clock, tearing the cellar walls from under the Thomas Kearns house at Pittston avenue and Gibbons street. Conductor William Argus, on an inbound South Scranton car, felt his car sinking at 10 o'clock as it passed through the 2,100 block of Pittston avenue. Argus notified the street car company and police and fire calls were sent in. The Kearns house was wrecked when the police and firemen reached the cave area. Flagstone sidewalks stood on edge. Fences were twisted and torn and a heavy odor of gas filled the block. The Kearns' family was helped to move into another street and other families in the cave zone were warned to be ready to move at any minute. Gas and Water company employees went through the block shutting off the gas in every house to prevent danger of fire or asphyxiation and a gang of street railway company employees was put to work bolstering up the tracks. So far as the city is concerned, the damage will be borne by the Lackawanna Company. They will pay for the broken sewer pipes and for filling in the streets. The several houses that were damaged, it was announced, will be restored in their former shape at the expense of the coal company.

City Will Oil Certain Streets.

South Cumberland, Md.—Petroleum road oil will be placed on the macadamized streets of Cumberland to lay the dust and make it more agreeable for people to walk and live on the auto-used, unpaved thoroughfares. Street Commissioner Hirsh was empowered to give such streets a petroleum coating at a special meeting of city council. Some of the streets affected will be Washington street extended, Bedford street extended, Green street extended and Winslow street, when it gets its promised macadam dressing. The county has already a tank of road oil at hand, standing on the Front street siding. It will oil many miles of road this summer.

State Highways to Radiate from Leading Cities.

Birmingham, Ala.—Should the next legislature decide to accept the recommendations of State Highway Engineer W. S. Keller for a line of trunk highways through Alabama, indications are that Birmingham and Montgomery will be the principal cities in the state to profit by such action. As the largest city in the state, and occupying the principal point of advantage in north Alabama, Birmingham will doubtless have several trunk highways leading to its boundaries. From Birmingham it is probable that a broad highway will be constructed to Decatur, and thence to Florence. Another highway will most likely be recommended between Birmingham and Anniston, another extending from Birmingham to Tuscaloosa, and another extending from Birmingham to Talladega. Should Mr. Keller make this recommendation to the legislature, and should his plan be accepted, Birmingham will then have at least three main thoroughfares or boulevards leading to it from the principal cities of north Alabama, from west Alabama, from the southeastern part of the state, and from Montgomery. Montgomery, on the other hand, may have highways leading direct to Mobile, to Selma, to West Point and to Dothan, in southeast Alabama.

White Flags to Mark Road Work.

Albany, N. Y.—Next week eight hundred white flags marked "S. H. D. Patrol," will be flying on the highways of the state, marking the places where the men engaged in repairing the roads are at work. This is in pursuance of the determination of John N. Carlisle, Commissioner of Highways, to make the patrol service more effective and to eliminate so far as possible to do so, the many complaints which have been made regarding the failure of patrolmen to care for the highways. This system of flags has been adopted from the European countries where the maintenance of highways has become much more of an exact science than it is in America. There, the travelers see the little white flags displayed at frequent intervals along the highway and it has had the effect of making the patrolmen more efficient as the failure on the part of the citizens of those countries to see the flags flying is always reported to headquarters. Mr. Carlisle is hopeful

that the adoption of this system will encourage the citizens generally in seeing that the patrolmen do their work better than many of them have in other years. He hopes that all persons using the highways and who fail to see the patrol flags along the roads of the state and county systems will notify either the main office, at Albany, or send a notification to the office of one of the division engineers. The patrolmen have been notified that this flag will be as much a part of their equipment as their wagons and their small tools. Wherever they are working, the flag must be displayed by the side of the road and if for any reason it is necessary for them to leave the highway, the flag must be left at the spot. The excuse that they have left the flag at home will not be accepted and the absence of it on a patrol route will be conclusive evidence that the patrolman is not working.

SEWERAGE AND SANITATION

New Steel Town Is Sued for Sewerage Lack.

Farrell, Pa.—The state has entered suit against the borough of Farrell County, asking \$99,300 for failure to obey a decree requiring sewage improvements, \$500 fine and \$50 a day penalty being asked.

Low Typhoid Rate Proves Sanitary Condition of City.

Fort Wayne, Ind.—Since April there has been but three cases of typhoid fever reported in Fort Wayne, despite the fact that predictions of an epidemic following the flood were freely made. Neighboring cities that were affected by the flood have a large number of cases, which furnished good proof that Fort Wayne has been made a sanitary city, one that floods cannot affect. It was feared that families moving into homes still wet from the flood would become ill, but there has been the small number of three, and one of these is traced directly to the drinking of water from an open well. Other diseases that had been feared also have not appeared, and the danger of them resulting from the flood is now past.

Ready to Start Disposal Plant.

Oswego, N. Y.—The Gail & Wilson Contracting Company, of Buffalo, will begin operations on the construction of the new West Side sewage disposal plant, which will be built under the special bond issue at a cost of approximately \$30,000. The contractors will have 360 days in which to complete the plant from when the work begins. Commissioner of Public Works John Smith will open bids for the building of the East Side storm water sewer in the course of Harbor brook, also the East Tenth and East Eleventh street storm water and sanitary sewers, the cost of which will approximate \$135,000. The following application of the city of Oswego has been granted by the Conservation Commission: To discharge sewage temporarily from proposed sewers in East Eighth street, Scriba, McWhorter and Cochrane streets into the hydraulic canal and the Oswego river. After October 1, 1914, all sewage in Oswego must be treated in the sewage disposal plant.

Many Gallons of Flies Captured.

Redlands, Calif.—A. E. Chapman, the city's official fly catcher, reports that he has caught 241 gallons of flies since he went to work with his fly traps for the city last September. He has been able to estimate closely the number of flies to a gallon by dividing a pint into small lots and counting them. In this way he has found that the average number of dead flies to the gallon is 60,000. Consequently he has captured 14,460,000 flies since he started his fly hunt. In view of the fact that scientists estimate that every time a fly is killed the slayer prevents the birth of 1,728 flies, it must be admitted that Mr. Chapman is an efficient fly killer. In September, the first month of the experiment, the flies caught amounted to 63 gallons; in October, 18 gallons; November, 31 gallons; December, 15 gallons; January, 8 gallons; February, none; March, 18 gallons; April, 22 gallons; May, 34 gallons. There are now 65 traps in use in the business district. "I found that the flies I caught last fall average about 75,000 to the gallon," said Mr. Chapman.

"They were mostly stable flies and so small and dried up that they did not occupy much space. The flies being caught this spring are house flies and larger, running 50,000 to the gallon. I have found highly flavored fruit, cooked or uncooked, the best bait, cantaloupes being the ideal bait for summer use. In winter I use dried or canned fruit or bananas, adding flavoring extract or ground cinnamon, sometimes adding corn syrup for sweetness. Occasionally bread and milk is good. The spring fly is short-lived. A week or two ends his existence. In the fall a fly more fully developed and stronger comes into existence. This fly hibernates, hiding in cold weather under timbers in livery stables and such places. The winter fly lives four or five months. A fly lays about 120 eggs, and they hatch almost immediately on being laid in the refuse where they are deposited. The larvae crawl into the ground to a depth of eight or ten inches, and live there in a chrysalis state until the first warm day, when it emerges into the air. Hence it is easy to see the importance of cleaning up all favorite breeding places of the insect."

WATER SUPPLY

Artesian Well a Gusher.

Asbury Park, N. J.—A new record for water gushers in this section has been established by the artesian well recently drilled for the city water plant by Ridpath & Potter, Philadelphia contractors. Spouting 780 gallons of water per minute, the well has a daily flow of approximately 1,123,200 gallons under an air pressure of 80 pounds to the inch. By increasing the air pressure to 105 pounds it is believed that the output can be increased to 1,000 gallons a minute. The new well is said to be the most prolific along the North Jersey coast. It is 1,132 feet deep and is eight inches in diameter.

City Now Has Abundant Water Supply.

Bessemer, Mich.—With the sinking of a new well in the sandpit southwest of the city pumping station an abundant supply of water for city use has been found. For several years the supply of water in Bessemer has been so scant that at times it was necessary to shut down the plant at night and forbid the use of water for sprinkling lawns during the summer months. The new well was sunk to a depth of forty feet, and at this depth a sufficient vein of water was encountered. A two-inch suction pipe was placed in the well, but this was too small and was replaced by a four-inch pipe. This, too, was found too small to diminish the supply of water, and now a seven-inch pipe is in use.

Engineer Studying Water Supply Maps.

Fort Worth, Tex.—C. R. Burdick, a Chicago hydraulic engineer, is engaged in making an examination of the maps of the water department properties of the city. While he has made no statement explanatory of the object of his investigations of the water supply and facilities for pumping, it is supposed that he will formulate a report on which a private corporation will base a proposition for pumping the city's water supply. The Fort Worth Power and Light Company has already made a proposal to the city to pump water for the North Side, and it is expected that it will make another offer to handle the entire output of the municipal wells.

Danger of Water Famine Ended.

Tacoma, Wash.—No new breaks in the Tacoma water system have occurred, and officials at the city hall assert that the worst water famine in the history of Tacoma is at an end. It has been a strenuous time for the men on the works, many of whom were 48 hours without sleep. Department officials report all pumps working with the exception of the one at B station and the two small pumps at Chandler and Sprague streets. These were not needed, it was said. No one knew at the city hall whether repair parts for the 4,000,000-gallon pump at "B," which went out of commission two weeks ago, and which might have saved the day for the department in the recent shortage, had been

ordered. Hypochlorite has been turned into the main pipe line to the city through a one-inch pipe. City officials have abandoned the theory of "lightning" or "dynamite" in connection with the destruction of the J street standpipe. It is tacitly admitted that the pipe collapsed either through defects in the staves or in its construction, or because employees erred in not filling the waste pipe when the water was allowed to enter the standpipe. As the standpipe had been practically dry for a month, it is believed that the staves shrunk, and that with no pressure on the inside to withstand the outside pressure, it collapsed. This might easily happen even with the inside of the pipe full, according to Chief Clerk S. C. Davis of the light and water department. Commissioner Owen Woods at a council session stated that the pipe collapsed through some defect or mistake.

Complete Filtration Plant.

San Angelo, Tex.—The new filtration plant being constructed for the filtering of San Angelo's water supply will most likely be completed the first of next week and will be tested out. It is expected that with the use of this plant there will be no further cause for complaint of water users here as to the condition of the water. San Angelo's water supply is a most abundant one and ordinarily of the best quality.

Falling Tank Kills Two Men.

Wainwright, Okla.—The tank of the town's water works system, on June 11, fell through the legs of the water tower, bursting when it hit the earth and instantly killing two workmen and washing into the reservoir the town's pumping station and all machinery. The tank was of modern design, elevated fifty or sixty feet above ground. Weakness in the framework of the tower was discovered several days ago, and two workmen were repairing it when the tank fell without any warning, carrying the workmen down beneath it.

Water Problem Solved.

Corpus Christi, Tex.—The city of Corpus Christi is solving its own water problems. Work has commenced on a temporary relief plant, a relay affair, six miles west of the city on the municipal pipe line bringing water here from the Nueces River reservoir at Calallen, eighteen miles away. The city is building two reservoirs, twins, each seven and one-half feet in depth and in dimensions 60 x 100 feet. They will be covered with a coat of cement plaster on the bottom and sides, to hold water, and each will have a capacity of 155,000 gallons. The present pipe line supplying the city with water runs between the two reservoirs. The capacity will be increased to 60,000 gallons daily, enough for the summer's needs. The relay plant will cost about \$20,000. While it is in operation the City Council will be at work on a permanent water plant, to be located on either Nueces River or Tule Lake, the latter project having the endorsement of Alexander Potter, of New York.

Survey for Santiam Water Supply Begins.

Salem, Ore.—Engineers representing the Santiam Water Company, organized for the purpose of securing a pure water supply for city, and other towns in the Valley from the Little North Fork of the Santiam have sent a crew of surveyors into the field to make a survey for a pipe line. The company intends to construct a dam 50 feet high on the Little North Fork, and in addition to supplying the towns with water, will develop 5,000 horsepower, which will be used in supplying the towns with power and light.

Impure Water Said to Cause Pellagra.

Rome, Italy.—Pellagra, the mysterious skin disease prevalent in semi-tropical climates which has baffled medical authorities for nearly 200 years, is caused by infected water, according to Professors Scala and Alessandrini of the Institute of Hygiene in Rome. The scourge has long been ascribed to the consumption of bad corn, but according to the professors' announcement, they have found that in the district of Italy where the disease is most prevalent the water is infected with flint stone in colloidal solution.

The professors declare the theory of the maize ptomaine is altogether groundless. They are endeavoring to induce

the authorities to proceed with a thorough examination of all the waters of the infected districts and rid Italy of a plague which claims 50,000 cases annually. The investigators have found that the infected water may be easily made safe for drinking purposes by putting into it a quantity of carbonated chalk.

In the United States a commission, whose work has been made possible by a gift of \$15,000 from Col. Robert M. Thompson of New York and John H. McFadden of Philadelphia, has been at work for over a year in the study of cases of pellagra in the Southern States. The commission's final report is yet to be issued.

Large Reserve Water Supply.

Charleston, S. C.—The work of cleaning out the reservoir of the old waterworks plant on George street has been begun with the purpose of putting the plant in working order and insuring a reserve water supply for Charleston in the event of a break in the mains in the suburbs or any trouble with the pumping machinery at Goose Creek. An electrical pump will be installed, having a capacity of 300,000 gallons an hour with a 10-hour supply which would prove efficient in event of a serious fire or any other emergency. The placing of the George street plant in condition for immediate use at any time is the result of an agreement entered into some time ago between the city and Charleston Light and Water Company. Certain main extensions were made, filters were to be cleaned and two additional filters installed and the George street station put into readiness for use. The water company is now meeting this last requirement. The improvement will give Charleston an excellent fire protection equipment. A three million-gallon water reserve, ready to be pumped through the mains at high pressure is a big thing for the city, and from an insurance as well as other viewpoints, should prove a very profitable asset for the city of Charleston.

Settles for Improvements.

Logan, Ia.—City officials of Logan have settled with the company for putting in the improvements to the water works plant of Logan, extension of water mains and the erection of water tower and other improvements and paid \$18,110 for the same.

Sisson May Now Buy Water System.

Sisson, Cal.—The Railroad Commission has rendered a decision granting the application of the town of Sisson to purchase the water system from the Sisson Development Company for \$12,000.

To Pump Water by Electricity.

Anniston, Ala.—The water supply of the city, which has heretofore been pumped from Coldwater spring by steam process, will in the future be pumped by electricity, as work is now under headway for the completion of this project, a huge electric motor and pump being installed at the plant under the direction of Wesley Rudisill, engineer for the Anniston Electric and Gas Company.

The motor will be of 300 horsepower and will have a capacity of 4,500,000 gallons per day, considerably more than is required by this city, which consumes only about 1,500,000 daily. The steam plant, however, will not be dismantled, as it will be held for emergency use. It is hoped to have the new plant in working order by the latter part of this week.

Agreement on Use of Water at Ellensburg.

Ellensburg, Wash.—E. W. Barr, legal examiner for the United States Reclamation Service, recently held a conference with Mayor J. A. Mahan and the City Council relative to the water contract to be signed for the municipal plant and government. The Reclamation Service has made many important concessions to the city, and the proposed contract, it is believed, will be of great benefit to the local light and power department and to the reclamation service, as it settles many disputed points over the matter of the water rights in the Yakima River. The government is to recognize the city's prior right to 150 feet at all seasons of the year and in addition the city is to be allowed to divert any water in the river through the light ditch, providing that no part of that water is stored or retarded in its flow.

Duplicates City Pump.

Kaufman, Tex.—The city council in called session purchased a duplicate pump to be placed at the water plant. The price of the pump was \$3,500. This addition will afford protection from possible breakdowns of the pumping facilities and will also reduce the insurance key rate.

Water Works Improvements.

Biloxi, Miss.—Work on the installation of the new electrical pumps and motors at the pumping station has been begun by E. L. Castanera, water works superintendent, and it is expected that the work will be completed in ten days or two weeks. This will finish the splendid new water works improvements in Biloxi and it is believed that the test of the pressure then to be made will prove that Biloxi has one of the finest fire-fighting systems of any town its size in the entire country. Mr. Castanera is also in receipt of the bill of lading for the new drinking fountain which will be placed in front of the city hall.

Analysis Shows City Water Is Pure.

Duluth, Minn.—The reports of the chemical laboratory for April and May show the water supply of Duluth to be in almost perfect condition. The analyses show the water to be absolutely free of colon bacilli, while the bacteria count is very low. The change began from the time the water and light department installed the hypochlorite plant at the Lakewood pumping station. The treatment has insured the city pure water. The typhoid germs have absolutely vanished and the bacteria are so few as to be a negligible quantity. The hypochlorite plant was inspected by Commissioner Hicken and Dr. H. E. Webster, director of public health. They found it in the best of condition, and were highly pleased with it. One complaint was made recently that the hypochlorite was responsible for a pair of sore eyes. The health department officials state that this is impossible, as the quantity used is so infinitely small, being but one-thirteen-hundredth of one part to 1,000,000 parts of water.

Improving System Increases Water Rates.

Fargo, N. D.—Fargoans are to pay more for their drinking water. As much as the people are protesting against the increase in rates, they will readily admit if the water in the old unfiltered stage was anywhere near what was charged for it, the present pure supply from the new filtration plant is worth all that is now asked. The establishment of the filtration plant has proven most effective, but also very expensive. It is to meet the additional cost that the city commission advanced rates from 50 to 75 per cent. Three years ago the old rates were reduced. The present advance is about 33 per cent. even in excess of the old rates.

Aqueduct Is Passed to the Water Board.

Los Angeles, Cal.—The entire aqueduct, including all the land, holdings and water rights purchased by the city in connection with the great water project, worth \$100,000,000, according to Chief Engineer Mulholland, has been transferred by the Board of Public Works to the water department. The board has had charge of the construction of the aqueduct and the handling of the \$25,000,000 bond money voted by the people for the undertaking. By its action the public works board relinquished all right to the management of the aqueduct to the water commissioners. The transfer will not involve any administrative changes, except that expenditures and sale of salvage material, etc., will hereafter be indorsed by the water board.

Monrovia Has Mountain Water Supply.

Monrovia, Cal.—At an expenditure of \$7,500, Monrovia is to secure \$100,000 worth of gravity water from her mountain water-bearing land in Saw Pit Canyon. According to estimates made by H. Hawgood, consulting hydraulic engineer of Los Angeles, the watershed now furnishing drinking water for the city will easily furnish 147 additional inches of pure mountain water. W. N.

Monroe, superintendent of water supply of Monrovia, has developed fifty inches additional by sinking two test wells to depths of 50 and 65 feet respectively. Now it is planned to develop other sources as fast as the treasury will permit and eventually reduce the cost of water in Monrovia to the lowest figure in Southern California.

Cannot Stop Water Diversion.

Trenton, N. J.—An opinion filed in the Supreme Court by Justice Swayze deciding against the city of Paterson in its efforts to prevent Jersey City, Kearny, Bayonne, East Newark, Harrison and Glen Ridge from diverting water perpetually from the Rockaway River. The city objected on the ground that the water is already diverted to public use in that its flow is valuable to two city parks in Paterson and a number of private enterprises. The court holds that the supply is ample for the mill ponds above the two parks and the ordinary elevation of the water would in no way be affected by the diversion.

700,000 Gallon Tank Burst at Macon.

Macon, Mo.—A 700,000-gallon water tank bursting at 11 o'clock at night sent a miniature Niagara down toward the Burlington Depot and along the railroad station. The tank was close to the Rollins street viaduct. The water came with such force that it swept away the iron railing on the retaining wall leading to the viaduct. The tank was shattered into fragments, as though blown up with dynamite. Loosening of bands around the big tank was the cause.

Towns Dry When Main Burst.

Mount Airy, Pa.—The bursting of a twenty-inch water main on Cherokee avenue, Chestnut Hill, deprived the residents of Mount Airy and Chestnut Hill and part of Germantown of the use of water for almost two hours. Thousands of persons in those suburbs who arise between the hours of 8 and 10 had to get along without the morning bath or any kind of wash, and many of them had to leave their homes without breakfast. The big main, which is supplied from the Roxborough reservoir, was cracked, it is believed, by the blasting of rocks in building operations. The accident occurred just at a time when there is the greatest need of water. Much inconvenience was suffered by the residents. A sewer and several houses are being constructed on Cherokee avenue south of Hartwell lane. The contractors had been blasting for several days, and it is believed that the explosion of dynamite used to break up the rocks caused the break in the main.

Five Wells Are Now Connected.

Mishawaka, Ind.—Contractor G. Frank Stockinger completed the connecting of the five pure water wells in East Mishawaka with the large pipe leading to the new water station. It has been a great task. These five wells are on the bluff overlooking the river, and it was necessary to dig trenches 24 feet deep to connect the wells. The sixth well line was drilled on the bottoms and this will be connected next. Over each well will be constructed water-tight manholes so that repairs can readily be made and each individual well can be shut off if necessary. The large smoke-stack is nearing completion; the roof is being placed on the station and cement floors are being laid.

Reports on Reservoir Survey.

Coleman, Tex.—Water Engineer M. L. Minter, who was employed by the city recently to make a detailed survey of a reservoir site on Indian Creek, filed his report with Mayor Miller. The report takes up every phase of the proposition in detail. He recommends that the city erect a dam 40 feet high at what is usually spoken of as the upper site. The erection of this dam would require about 68,300 cubic yards of dirt, and the reservoir, when built, would hold 336,000,000 gallons of water, or enough to supply a city of 12,000 people for one year, allowing 75 gallons a day per capita. The drainage area would be 10.2 square miles, 40 per cent. of which is in cultivation. It would require only 15 per cent. of the average annual rainfall to keep an abundant supply of water in this reservoir, provided the city should use its full capacity each year.

STREET LIGHTING AND POWER

Explosion Cuts Off Electric Lights.

San Francisco, Cal.—A large part of the residence portion of the city was without electric lights the evening of June 11th because of an explosion in a power conduit.

Big Power Plant at Keokuk in Operation.

Keokuk, Iowa.—Keokuk is now on the map as a power center. Hamilton and Warsaw, Ill., and Keokuk on June 4th for the first time received their light and power from the \$25,000,000 hydro-electric plant on the Mississippi. The current was generated by one of the 10,000 horsepower turbines. Ultimately the plant will generate 200,000 horsepower and the current will be sold in all neighboring cities and as far away as St. Louis. One company in St. Louis will use 50,000 horsepower. The dam is 5,800 feet long. The first installment consists of ten 10,000 horsepower generators, which will be doubled as soon as there is a market for the power.

Lighting Standards for White Way.

Washington, D. C.—Gerard Schumacher, general manager and vice-president of the Union Foundry Company, Anniston, Ala., states that of the 1,200 white way posts cast and shipped to Washington, to be erected as part of the lighting system, not one has been rejected or criticised, and that the bill for the same had been already paid. The original order for Washington was 600 posts, but before work had been completed on this order, it was duplicated by the commissioners of the District of Columbia, making 1,200 posts in all. The Union Foundry people were also awarded a contract for furnishing street marking posts and frames for Washington City, and these are now being turned out.

To Develop New Power.

Chattanooga, Tenn.—Work has commenced on a second development project by the Chattanooga & Tennessee River Power Company at the lock and dam which will give the augmented plants a capacity of 81,000 horsepower, or 25,000 horsepower greater than originally planned for the immense electrical power plant. Engineers have studied the project of utilizing the overflow of water—for the dam will be overflowed at least eight or nine months each year—and to conserve the wasted power, have recommended the construction of a second power plant some distance below the dam. Two great tunnels, or flumes, will be constructed through the ground on the side of the river next to the first power house, and the superfluous or overflow water in the dam will be carried and made to turn turbine wheels which will generate 25,000 horsepower. The second power house and the tunnels are to be constructed at some future time, but possibly not far in the future. A crew of workmen is now employed in cutting two great tunnels through the cement wall and embankment of the dam which will be that part of the dam between the power house and the immediate shore when the river is raised. With the second power house in view, the tunnel gates in the big dam are being constructed now to dispense with the necessity of cofferdams when the river level is raised by closing the gates of the lock. The object of the second development at the lock and dam is twofold. The presence of a body of water above the dam large enough to cause an overflow decreases the maximum generating power of the plant. By reducing the bulk of water in the dam by carrying it away by the two tunnels to be constructed allows the first power plant to be operated at its maximum capacity during the eight or nine months while the river is flowing at its higher gauges. At the same time the flumes carry off superfluous water from the dam it will be utilized for operating a second power plant, which augments the total capacity of the lock and dam electrical generating plants fully 50 per cent. Thus the maximum capacity in horsepower is raised to 81,000. The tunnels from the dam to the second power house will be constructed underground. No definite estimate of the probable cost of the second development at the lock and dam have been made. It is expected that the first power from the lock and dam will be generated some time in the early fall. Work on the dam, power house and lock is progressing steadily.

FIRE AND POLICE

Orange Fire Loss Lowest in State in 1912 Report.

Orange, N. J.—Orange was the only city of the state, according to the National Board of Fire Underwriters, which succeeded in keeping the fire loss in 1912 below 40 cents per capita. In the United States there were fifteen cities of over 20,000 that kept the losses below this figure. Savannah was lowest with 18 cents per capita. Orange had 139 fires in 1912 and a loss of \$10,865. The population is in round numbers 30,000. In another table giving losses above \$5 per capita, Perth Amboy, a city but little larger than Orange, had a loss of \$7.15 per capita. The total loss was \$250,400 and there were 77 fires. Houston, Tex., visited by a big fire, had a loss of \$51.14 per capita and stood at the head of the list. Houston had nearly as great a loss in 1911. Newark had a loss of \$2.92 per capita, about an average among the big cities. Jersey City had a loss of \$1.56. Trenton was just outside the forty or under table with 41 cents. Paterson had a loss of \$4.41. By way of comparison New York had a loss of \$2.24.

World's Record High Water Pressure.

New York, N. Y.—A world's record in fire protection has been established by the success of an experiment made in shooting high pressure streams of water from the fifty-fourth floor of New York's highest building. This was from a height of 767 feet, the test being made from the building's independent fire standpipe system, the city's high pressure service not being tried. Of the 350 pounds' pressure given the water at the pump in the basement more than twenty pounds was retained at the nozzle of two lines of the hose on the fifty-fourth floor.

Fire Protection Tested.

Lindsay, Cal.—At a meeting of the Lindsay Merchants' Association resolutions asking the city council to make an exhaustive test of the city water and fire fighting equipment were adopted.

More Fire Protection Urged.

Paterson, N. J.—Including more than 100 items, the recommendations of the National Board of Fire Underwriters for changes in fire protection in this city have been received. The carrying out of them all would cost, it is estimated, fully \$1,000,000. Principal among the recommendations are the following: Strengthening of the water distribution system with new mains; construction of a new distributing reservoir with a minimum capacity of 20,000,000 gallons; installation and replacement of street mains, to include nearly one mile of 24-inch mains and over six miles of 12-inch mains; that 6 and 8-inch mains be adopted as standard for residential districts and 8 and 12-inch mains as standard for mercantile and manufacturing districts. That the distribution system be sufficiently connected with gate valves that not more than 500 feet be cut out from service at one time; that engine companies consist of eleven men, ladder companies of ten men, and that each company have one permanent stoker; establishment of a ladder company equipped with an automobile combination service truck in the vicinity of Madison and Beckwith avenues; revision of the building code in conformity with the national board code; appointment of an assistant building inspector; extension of the fire limits to include all mercantile and manufacturing districts.

Wires in Fire District to Go Underground.

Racine, Wis.—An order signed by Mayor W. S. Goodland has been served on the telephone, telegraph and electric light companies, requiring that all wires within the fire district be placed underground by June 22, and all poles in the same district be removed by that time. The order is in accordance with an ordinance passed by the Common Council in 1910 that gave the companies three years in which to comply with the provisions. All of the companies have put in underground ducts since that time, and made preparations for putting the wires underground.

MOTOR VEHICLES

Unique Auto Delivered by Kissel Company.

Duluth, Minn.—The new Kissel auto for Assistant Fire Chief Charles Wilson has arrived and is now in service. It is the design of Assistant Chief Wilson personally, and fills the requirements of ordinary auto work, added to which are the utilities for work at fires. Back of a roadster body is a platform about five feet long, on which is a small but powerful chemical engine and 200 feet of hose for the engine. Boxes on either side are for further equipment. The car was built for the department at the Kissel factory at Hartford, Wis., and is typically Kissel in its general lines, which are most attractive and are not spoiled by the additional equipment. The car has four cylinders and develops 50 horsepower. It is vividly red in color and attracts attention everywhere.

Gainesville's Auto Truck Has Arrived.

Gainesville, Fla.—A representative of the American-La France Fire Engine Company, Elmira, N. Y., is to give demonstrations of the merits of the new triple combination chemical automobile hose truck and pump which was recently sent to Gainesville. The truck is equipped with a pump of sufficient power to remove from the mains 700 gallons per minute and with the equipment heretofore provided will place Gainesville in the front ranks of Florida cities in the matter of fire-fighting facilities.

Auto Aerial Truck Has Been Ordered.

Lexington, Ky.—Commissioner of Public Property K. G. Pulliam has given the order for the new \$11,000 auto aerial ladder truck, which will be delivered in Lexington by the American-La France Company, Elmira, N. Y., about September 15. The truck Lexington is to get is the very latest of aerial makes with all improvements, including pneumatic ladder hoisting device, water-tower pipes and nozzle equipment and it will have a speed of more than 20 miles an hour in spite of its great weight, which will be in the neighborhood of 12,000 pounds. From the top of the highest ladder a two-inch stream of water can be thrown into a 15-story window. This will make the truck serviceable in any of Lexington's skyscrapers, even including the new Fayette National Bank building.

Alco Chasses for Fire Equipment.

Schenectady, N. Y.—The two automobile chassis for the fire department ordered some time ago from the American Locomotive Company, both being of Alco make, are ready for delivery. Clark Witbeck, agent for the Alco car, informed Commissioner of Safety Cole to this effect and the new equipment will be in use within a few days. Commissioner Cole has decided that one of the machines will be used for the combination wagon at Station No. 2, on lower State street. The other will probably go to the North Jay street station, No. 3. The new combination motor truck, fire engine and hose wagon for Station No. 8 will be ready for delivery within a month, and when this comes the fire department will have four stations equipped with modern motor-driven fire-fighting apparatus.

Webb Gasoline Electric Truck Tests at Trenton.

Trenton, N. J.—Tests of the new gasoline-electric fire truck which will be purchased by the city were made to the satisfaction of Fire Chief Bennett and the City Commissioners. The first test was made in the rear of the Times and Municipal Buildings. In eleven seconds from the time Chief Bennett gave the word, the ladders were raised. Following several exhibits of the manner in which it is possible to use the truck and its ladders, and with men making runs, the truck was driven to East Hanover street. Tests were then made by running ladders to the Dolton Building and the Trenton House. In 23 seconds from the time the

truck was halted the ladders were raised and a man was on the top of the Trenton House. The 75-foot extension ladder was raised automatically in eleven seconds, with Captain Knoblauch on it. James Hann, of truck 2, then climbed to the top of the ladder, which was swung from the top of the four-story Trenton House to Dolton's Block, on the opposite side. Four men, including Chief Bennett, climbed to roof of latter building in 23 seconds. The truck was made by the Webb Motor Fire Engine Co., of Allentown, Pa.

Court Sustains Fire Apparatus Purchase.

Portland, Ore.—Circuit Judge Hamilton handed down an opinion sustaining the action of the Executive Board of the city in purchasing \$63,000 worth of fire apparatus from the American-La France Fire Engine Company, in October, 1912. The apparatus has been delivered and is in use, but the Mayor, City Auditor and City Treasurer were restrained from issuing the warrants for the payment of the account by a suit which was filed several months ago by D. R. Young, a taxpayer. This was the suit which was decided recently, and the decision leaves the city officials free to pay the bill. Young asked a permanent injunction against the city officials on the ground that the La France people were not the lowest bidders for the engines, and that the Executive Board had abused its discretion in awarding the contract to the concern. Other bidders for supplying the engines were the Nott-Joslyn Company, the Pacific Coast Fire Supply Company, the White Company, H. L. Keats Company and the Ahrens-Fox Company. The Nott Company submitted lowest bids on some of the apparatus required. "The provision of the city charter which requires an advertisement for all supplies over \$250, is mandatory," said the judge in rendering his opinion. "However, it is not mandatory in every case to award the contract to the lowest bidder. Where the question is quality alone and all bidders are offering to supply goods of equal quality, the lowest responsible bidder should prevail. But every case must be determined on its own peculiar circumstances. The Executive Board in this instance was looking for engines that would best answer the purposes of the city. They decided to purchase the La France engines because they found them superior. Such discretion is necessarily vested in this board. It should be governed not only by the lowest bid, but by other circumstances as well. It was important that they should secure the best, and as no bad faith is alleged, the board was justified in its action. The court will not set aside the contract and will dissolve the temporary injunction already issued." The apparatus furnished by the La France people included a motor truck pumping and hose car and eight chemical and hose motor cars.

Street Department Gets 3-Ton Velie Dumping Truck.

Bangor, Me.—The Street Department has put in service a 3-ton Velie truck fitted with a special dumping body. It will be used for hauling crushed stone, gravel and sand and for repair work. The body when elevated reaches an angle of 45 degrees. The motor has four cylinders, 4½-inch bore and 5-inch stroke; this gives it great pulling power at slow speeds. The main frame is 6-inch I-beam structural steel section, 4-inch channel sub frame. The rear axle is 4 inches in diameter, solid round section.



VELIE TRUCK USED BY STREET DEPARTMENT, BANGOR, ME.

Police Auto Patrol in Commission.

Perth Amboy, N. J.—The city's new auto patrol and ambulance has been delivered. The vehicle, a Lippard-Stewart, will be equipped with a revolving deck sign in front, bearing the words "ambulance" and "patrol." This will be turned to indicate the nature of each call. A rail will be installed across the rear. In the vehicle on its maiden trip were Mayor Ferd Garretson, Alderman John J. Clark, Superintendent of Police C. M. Wagner, with Frank Van Syckle at the wheel.

GOVERNMENT AND FINANCE**City Pays All Debts.**

Tribune, Kan.—The City Council has made itself popular with taxpayers by effecting a compromise of the city's total bonded indebtedness of over \$6,000 for \$3,750. This city is now one of the few in western Kansas free from bonded indebtedness. A small per cent. of the indebtedness was barred by the statute of limitations, but there has been no inclination on the part of voters here to take advantage of the law.

Change Assessment of Franchises.

Bismarck, N. D.—Personal property assessment of practically all North Dakota cities will show decreases this year, as a result of the new law making it the duty of the state tax commission to assess franchises. This includes the franchises of such corporations as gas, electricity, etc., and heretofore these have, in some instances, been the big items in the city assessment rolls. At Grand Forks the changed law resulted in \$78,000 worth of property, heretofore assessed by the city, being assessed by the tax commission. Despite that fact, Grand Forks showed a decrease of only \$2,000, increases in other items balancing the change.

STREET CLEANING AND REFUSE DISPOSAL.**To Teach Scientific Sweeping.**

Chicago, Ill.—There are 29 ways of handling a broom, but only one correct way, and this will be taught in a school for the men who sweep Chicago's streets, according to a plan recommended by the technical board of the bureau of streets. The experts state that the greatest efficiency in the "white wings" can be obtained only by such an institution wherein will be taught the most practical way of utilizing tools and machines and the theory of scientific street cleaning. The board calls attention to the many ways of using a broom as an example of the need of system. As part of the plan to make Chicago a spotless town the board would attire the sweepers in white duck uniforms to be laundered daily.

No More Free Oil for Streets.

Fort Worth, Tex.—Property owners of Fort Worth who wish to use oil for sprinkling will not be furnished with free oil by the city, following the decision of Street Commissioner Grant. Provisions will be made to apply the oil free of cost. It is estimated that the cost of oiling a street front of fifty feet will be \$4 during the summer season. Last year the city spent \$6,500 for oiling the streets. Commissioner Grant said that only \$1,000 would be used for that work this year.

60,000 Ragpickers of Paris Must Go.

Paris, France.—Sixty thousand members of the ancient and picturesque profession of the "chiffonnier" or ragpicker are in revolt against the authorities at the prospect of seeing their means of livelihood taken away from them by the new sanitary regulations of the city of Paris, which comes into force next month. Hitherto men, women and children to the above number have eked out an existence by turning over and sifting the contents of the city's ash barrels in the small hours of the morning for objects of some slight value, which they afterwards sort, clean and sell. Under the new rules all the rubbish is to be put out by householders for

collection in closed bins only to be opened by the dustmen, who work around midnight. Thus at one sweep the occupation of an army of workers is gone. A petition of the "Syndicate of Working Ragpickers of Both Sexes in Seine Department" against the enforcement of the new law is being distributed broadcast for signatures, but the appeal is meeting with little response from the public, who are convinced that the health of the city with its 3,000,000 people is the more important consideration.

RAPID TRANSIT**City May Run Cars.**

Cleveland, O.—That the Cleveland Street Railway Company will quit operating cars under the three-cent fare grant if the arbitration committee considering differences between it and the city decides that it may exceed its fixed allowances only in emergencies, was indicated at arbitration proceedings. Mayor Newton O. Baker, for the city, immediately declared that if the company did not operate cars the city would.

Installing New Control System.

Youngstown O.—An important change in car equipment is being made by the street railway company. The old style multiple unit air control on some of the cars is being discarded and the more modern appliance installed. This control is air operated and regulates the current supplying the motors. By this means the full voltage is kept away from the operator's platform making it safer.

Detroit Wins Fight With Street Railway.

Detroit, Mich.—The city of Detroit won its fight with the Detroit United railway, when the supreme court held that the railway's franchise on the Fort street line had expired June, 1910, and that the railway had no right to remain in the streets.

MISCELLANEOUS**An Anti-Hatpin Ordinance in Seattle.**

Seattle, Wash.—The anti-hatpin ordinance in the city council at the request of Federation of Women's club was passed unanimously by the council. The ordinance provides that the point of a hatpin shall not be permitted to extend more than one and one-quarter inches beyond the crown of the hat and in no case beyond the brim. Violation of the ordinance may be held punishable by a fine of not more than \$100 or imprisonment for not more than 30 days.

Municipal Opera Doomed.

San Francisco, Calif.—The state supreme court has ruled that San Francisco cannot permit the Musical Association, a private corporation, to build on land owned by the city, the proposed \$750,000 municipal opera house. The building was to have occupied a site in the civic center. The court declared the city would not have the power to permit a private corporation to erect a building on city land and turn over the "entire control and management of the land with the building, to a board composed for the main part of persons whom the municipality has not selected, and whose actions it cannot direct."

Town Brings Suit Against Comedians.

Watts, Calif.—Papers have been prepared by the city authorities of Watts, Los Angeles County, and will be filed against Kolb and Dill, the German comedians now appearing in Los Angeles in a skit which they call "Lonesome Town," asking \$25,000 damages, because of alleged injury done to the little city because of the comedians' jokes. The business men of Watts claim that the remarks perpetrated by the showmen at the expense of their town has injured the sale of bonds, and made Watts the butt of jokes and jibes for all classes. An injunction will also be asked restraining Kolb and Dill from continuing the skit "Lonesome Town," it being alleged that the title is a sneer at Watts and does the place an injustice.

Establish Municipal Warehouse.

Washington, D. C.—By the establishment of a communal warehouse and the creation of a bureau which will supervise the purchasing of all supplies the local government of the District of Columbia expects not only to save thousands of dollars annually in the operation of the capital, but to point a way for other cities to improve their systems. A special committee has been at work for some time past mapping out the plans. The main advantages that will accrue, the committee believes, will be prevention of "leaks" in the acquisition of supplies through co-ordination of the various purchasing offices. Equipped with a central warehouse advantage also could be taken of prices when the market is low. Another function of the bureau will be its supervision of property acquired, and it will be given full authority to demand an accounting from employees for the condition of municipal property. Inquiry into the proposed reform was made by Alonzo Tweedale, auditor of the district; W. A. McFarland, superintendent of the water department, and M. C. Hargrove, purchasing officer. The commissioners have authorized the adoption of the plan.

Town to Own Telephone System.

Mitchell, S. D.—At a special election bonds to the amount of \$60,000 have been voted for the erection of a municipal telephone plant. The election was the result of a five-year legal battle between the city and a telephone company. The city council refused to renew the company's franchise.

City Will Restrict Open Air Cafes.

Paris, France.—The hurry and bustle of modern life is about to cause the disappearance of what for many years has been one of the most charming features of Paris life. The Prefect of the Seine has sent forth an edict that after July 1 the "Terrasses," or open-air parts of cafes, which hitherto have been allowed to spread almost to the edge of the sidewalk, must not cover more than a third of the width of the pavement. Where the latter is less than five feet no chairs outside are to be allowed at all. The authorities explain that complaints have been pouring in daily from pedestrians unable to make their way along many of the leading thoroughfares of Paris without having to turn out in the road, at the grave peril of their lives from careless Paris chauffeurs, the immense blocks of chairs and tables making it impossible to keep on the sidewalk. It is certain that Paris streets will take on an utterly different aspect next month, especially as such familiar landmarks as the Cafe de la Pair and the cafes in the Rue Royale will be shorn of most of their former glory. At the same time, some doubt is felt as to how long the new regulation will be respected by cafe keepers, as it is recalled that some time ago a similar attempt was made by the administration, which set pieces of metal in the pavements of the principal streets as marks showing that "terrasses" might spread thus far and no farther. After a little while, however, the marks were buried far under the overflowing tide of consumers of absinthe aperitifs.

New Concrete Seats for the City Parks.

Duluth, Minn.—Many new seats are to be placed in the Duluth parks this summer, according to Henry Cleveland, superintendent of parks. A number of concrete seats will be made. The sides will be made of concrete, in which openings will be provided for the insertion of boards for the seats and back rests. One feature of them will be that they will be so heavy that they cannot be carried away. A number of the others will be anchored to the ground, for the same reason. A number of seats have been lost because it has been so easy to walk off with them. One was found by Supt. Cleveland several miles back of Lester park. The band stands have been completed in the four parks, Chester, Fairmont, Lincoln and Lester, which will have band concerts this year. The seats for them have been ordered and will be available for the use of the public when not utilized by the band. Each platform has been built large enough to accommodate a band of forty to fifty pieces and no concert will be given this season with a band of less than 25 pieces.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Municipal Debts and Claims—Offset.

State ex rel. Pratt et al. v. City of Seattle (Ward et al., Interveners).—An officer of a city who pays money from the municipal treasury to an individual owing a like sum to it is guilty of malfeasance in office.—Supreme Court of Washington, 132 P. R. 47.

Character of Public Ways—Duty of Municipality.

Kirkham v. Kansas City.—A city must use reasonable care to keep its streets and sidewalks safe for public travel, the degree of care differing with the circumstances and conditions, although the peril consist of places or things not upon the street, but dangerously near on private property.—Supreme Court of Kansas, 132 P. R. 160.

Water Courses—Enjoining Pollution.

City of New York v. Blum.—Where a duck pond maintained by defendant was a nuisance by reason of water flowing therefrom into a stream and polluting it, defendant could not complain that the injunction against maintaining the nuisance was conditioned to his refusal to permit plaintiff to prevent the pollution by cleaning the pond, placing sand and gravel on the slopes and a filter at its outlet.—Court of Appeals of New York, 101 N. E. R. 869.

Viaduct—Local Improvement.

City of Waukegan v. DeWolf et al.—A viaduct over a ravine, which crossed one of the principal streets connecting two parts of the city, was primarily for the benefit of the general public and not for the primary benefit of the real property in the vicinity thereof, and was not, therefore, a local improvement which could be paid for by the levy of a special assessment on such property.—Supreme Court of Illinois, 101 N. E. R., 532.

Motor Vehicles—Ordinances—Reasonableness.

City of Chicago v. Walden W. Shaw Livery Co.—An ordinance making it unlawful to operate or permit to be operated upon the streets, etc., any motor vehicle so as to permit steam or noxious odors to escape therefrom or discharge oil, etc., or to operate a motor vehicle the exhaust pipe of which is not parallel to the ground, is not unreasonable on its face.—Supreme Court of Illinois, 110 N. E. R., 588.

Municipal Water Supply—Legislative Control.

Asbury et al. v. Town of Albemarle.—The Battle Act enabling towns to construct and maintain public water systems, but requiring them, before construction of any public system, to acquire by purchase or condemnation any system of like character already constructed by any private or quasi public corporation then in active operation and serving the public, is unconstitutional as an invasion of the principle of local self-government which requires that the control of such utilities be left to the sound discretion of the municipal authorities.—Supreme Court of North Carolina, 78 S. E. R., 146.

Icy Sidewalk—Liability of City.

Jackson et al v. City of Grand Forks.—A city may be held liable in an action for damages where the evidence of, at least, some of the witnesses, which is believed by the jury, shows that a portion of a sidewalk has remained covered with ice and snow during the whole winter, and such ice and snow has been allowed to thaw and freeze and accumulate during such time, and no effort has been made by the city either to remove it or cause the same to be removed or to sprinkle it with sand or other substance in order to render it less dangerous, and the evidence also shows that such ice and snow was trampled into ruts, mounds, humps and hillocks by the pedestrians during a thaw and frozen in such condition, and that after a snowstorm, which later fell upon and largely hid the same, plaintiff slipped and fell thereon.—Supreme Court of North Carolina, 140 N. W. R., 718.

NEWS OF THE SOCIETIES

Calendar of Meetings.

July 8-10.

INDIANA LEAGUE OF MUNICIPALITIES.—Annual Convention, Gary. A. P. Melton, Secretary, Gary.

July 15-17.

UNION OF CANADIAN MUNICIPALITIES.—Thirteenth Annual Convention, Saskatoon, Sask. W. D. Lighthall, Hon. Secretary-Treasurer, 305 Quebec Bank Bldg., Montreal, Canada.

July 21-26.

IOWA STATE FIREMEN'S ASSOCIATION.—Annual Convention, Perry.

July 22-25.

LEAGUE OF WISCONSIN MUNICIPALITIES.—Annual Convention, Neenah, Wis.

August 5-8.

NEW YORK STATE FIREMEN'S ASSOCIATION.—Annual Convention, Brockton.

August 10-22.

INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.—Eighteenth Annual Convention, Watertown, N. Y.

August 25-30.

FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, Buffalo, N. Y. Dr. Thomas A. Storry, Secretary General, College of the City of New York.

August 26-28.

CENTRAL STATES WATER WORKS ASSOCIATION.—Seventeenth Annual Meeting, Cedar Point, O.—R. P. Bricker, Secretary, Shelby, O.

September 1-6.

INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS.—Forty-first Annual Convention, Grand Central Palace, New York City. James McFall, Secretary, Roanoke, Va.

September 9-13.

AMERICAN PUBLIC HEALTH ASSOCIATION.—Annual Convention, Colorado Springs, Col.—S. M. Gunn, secretary, 735 Boylston street, Boston, Mass.

September 10-12.

NEW ENGLAND WATER WORKS ASSOCIATION.—Annual Convention, Philadelphia, Pa. Willard Kent, Secretary, Narragansett Pier, R. I.

September 29-October 4.

AMERICAN HIGHWAY ASSOCIATION.—Annual Convention, Detroit, Mich. J. E. Pennybaker, Secretary, Washington, D. C.

October 7-10.

AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Twentieth Annual Meeting, Wilmington, Del.—A. Prescott Folwell, Secretary, 50 Union Square, New York City.

November 10-15.

UNITED STATES GOOD ROADS ASSOCIATION.—Meeting St. Louis, Mo. John H. Bankhead, president; J. A. Rountre, secretary, 1021 Brown-Marx Building, Birmingham, Ala.

December 9-12.

AMERICAN ROAD BUILDERS' ASSOCIATION.—Annual Convention, First Regiment Armory, Philadelphia, Pa. E. L. Powers, Secretary, 150 Nassau street, New York City.

International Municipal League.

At the annual meeting of the Association of Municipal Corporations, London, England, May 28, a resolution was adopted accepting the invitation of the Union of Canadian Municipalities to join in establishing an International Municipal Union. The objects of the proposed union are, first, to promote the effective co-operation of its members in the investigation, study and discussion of municipal problems; secondly to promote an international exchange of information and counsels in regard to plans proposed, methods adopted, and results achieved, in connection with the management and improvement of modern cities; thirdly, to secure the most advantageous publication of such information as will be most useful to the members of the league and students of municipal affairs; and, fourthly, to further international friendship, harmony and progress.

The following organizations have already acted favorably on the proposition: National Municipal League of the United States, Union of Canadian Municipalities, Municipal Association of New Zealand, National Association of Local Government Officers, England (conditional).

The following organizations have the matter under consideration: Convention of Royal Burghs, Scotland; Local Government Officers' Association of the Province of the Cape of Good Hope, South Africa; South African Municipal Association, Johannesburg; League of American Municipalities, Baltimore; Association of Municipal Corporations of the Cape Province, South Africa; Local Government Association of New South Wales, Australia.

Union of Saskatchewan Municipalities.

The eighth annual convention will be held at Indian Head, Saskatchewan, Canada, June 26-28. The following is the official program:

Thursday, June 26—10 A. M.: Registration of delegates; appointment of committees. 2 P. M.: Opening of convention; address of welcome by the mayor of Indian Head; president's address, T. M. Bee, Esq., president U. S. M.; secretary-treasurer's report; paper, Angus McKay, Esq., superintendent Experimental Farm, Indian Head; paper, "Tree Planting," Norman Ross, Esq., superintendent Forestry Farm, Indian Head; visit to forestry and experimental farms. 8 P. M.: Paper, "Electric Lighting for Medium and Small Sized Towns," M. M. Inglis, Esq., electrical engineer, Yorkton; paper, "Natural Resources of the Province," Dr. Andrews.

June 27.—10 A. M.: Address, J. N. Bayne, Esq., deputy minister of municipal affairs for the province of Saskatchewan; resolutions. 2 P. M.: The convention will be entertained as the guests of the town of Indian Head at Lake Katepwa.

June 28.—10 A. M.: Paper, "Municipal Finance"; resolutions. 2 P. M.: Election of officers; selection of meeting place for 1914 convention.

PERSONALS

Canavan, Thomas J., East St. Louis, Ill., has been appointed commissioner of Public Works.

Carroll, Frank, Pensacola, Fla., has been appointed fire chief. James M. Johnson has been appointed street superintendent.

Dwyer, James F., Kingston, N. Y., has been re-elected president of the water board. Chas. F. Wood has been appointed superintendent.

Elsner, Richard E., City Engineer of Cadillac, Mich., has resigned and will locate in Portland, Ore. Mr. Elsner was formerly assistant city engineer at Grand Rapids, Mich.

Fearnside, F. J., Palatka, Fla., has been elected chairman of the recently appointed State Board of Health. Dr. Joseph Y. Porter has been elected state health officer. Other members of the board are S. R. Mallory Kennedy, of Pensacola, and C. G. Memminger, of Lakeland.

Garden, H. M., San Angelo, Tex., has been appointed city engineer, succeeding J. J. Goodfellow. Mr. Garden was formerly county engineer.

Griswold, H. W., Hartford, Conn., has been appointed as a member of the engineering force of the water department.

Howard, Marshall, Red Oak, Ia., has been appointed county road engineer.

Kahn, Dr. Paul, Long Branch, N. J., has been elected president of the Board of Health. Other members are W. R. Warwick, A. P. Paul and E. E. Tabor.

Light, Adam M., Lebanon, Pa., has been appointed city highway commissioner by Mayor J. P. Longenecker.

Markivich, Fred, Reading, Cal., has been appointed superintendent of sewers, succeeding O. C. Preston.

Illinois.—East St. Louis, Mayor Chamberlin has announced the following committees: Water Supply—Louis J. Runtz, A. Rouge, C. J. Tietje, J. M. Sheer, Edw. Dowling, Wm. Leber, C. F. Short and R. H. Huschle; Streets—J. D. Roche, Edw. Dowling, H. R. Huschle, C. F. Short, Tony Hahn, C. A. Arnold, Wm. Leber and Louis Runtz; Sewerage—C. F. Short, E. J. Spiesbach, Tony Hahn, E. L. Rebhan, Wm. Leber, A. Rouge and R. H. Huschle; Sanitary and Health—W. B. Crawford, E. L. Rebhan, Tony Hahn, L. G. Runtz, A. Rouge, J. M. Sheer, R. S. Huschle and J. D. Roche; Fire—Edw. Dowling, Tony Hahn, John Malinee, J. M. Sheer, R. H. Huschle, Wm. Leber and E. L. Rebhan; Street Lighting—J. W. Galvin, E. L. Rebhan, R. H. Huschle, A. Rouge, C. J. Tietje, Tony Hahn, C. F. Short and E. J. Spiesbach.

New Jersey.—Millville, the new commission government with H. J. Grieg as mayor has been inaugurated. Thos. Whittaker is director of finance, R. B. Corson director of public safety, W. S. Kates commissioner of streets and public improvement, W. F. Ware commissioner of parks and public property.

California.—Napa, the following chairmen of committees have been appointed: Finance—E. J. Russell; Fire, Light and Water—Edw. Henry; Public Buildings—C. F. Ross; Streets and Parks—Joseph Shuppert; Police—Edw. Hogan.

Florida.—Pensacola, the new commission government has been inaugurated as follows: Adolph Greenhut, mayor and commissioner of finance; T. H. Johnson, commissioner of streets and parks; F. R. Pou, police and fire commissioner. The following appointments have been made: Fire Chief—W. R. Bicker; City Clerk—Adrian Langford; Comptroller—John G. Ward; City Electrician—Len LeBaron; Superintendent of Water Works—James Sweeney; City Engineer—George Romrell.

MUNICIPAL APPLIANCES

Star Police Box.

The Star Electric Company, Binghamton, N. Y., have placed on the market a police alarm box equipped for citizen's key, by means of which citizens entrusted with keys may summon police assistance, the citizen's key in the meantime being trapped in the key-hole until released by an officer with a master key. Any officer may transmit, in addition to the box number, one of several, as many as seven, special signals. These signals are sent by moving the index pointer to the signal shown on the dial and pulling the starting handle. The pointer remains where set until the door is closed, thus giving an officer the opportunity to see that he has given the right call. These boxes are equipped with telephone, tapper bell, lightning arrester, plug cut-out and a signal key for testing.

Puro Drinking Fountain.

Alleged sanitary drinking fountains are made in great numbers. In fact, a manufacturer would hardly venture to place a drinking fountain on the market without calling it sanitary. As a matter of fact, some such manufactures are not sanitary, substantial or economical. For this reason, the merits of the Puro, made by the Puro Sanitary Drinking Fountain Co., Haydenville, Mass., which is claimed to be the only device of its kind, are presented. The Puro is both a drinking fountain and a faucet. The fountain is a heavy, thick, red brass casting, heavily plated with nickel. It replaces an ordinary faucet and does not require an expert to install, nor any costly extra piping or valves. It is simply screwed on in place of the old faucet. In operation, on pressing the bubble handle, the stream or bubble rises to a height of about one and a half inches and then gracefully breaks. It cannot rise any higher than it is set for. When the faucet is used the full pressure of the water system is ob-

tained. The manufacturers claim that in ordinary use it saves 35 per cent. of wasted water and 60 per cent. of the time of the person drinking.

Corrugated Tampers for Concrete.

In the catalogue recently issued by the Ransome Concrete Machinery Co., Dunellen, N. J., three types of corrugated tampers are shown. The use of these tampers makes possible "one-piece work" and eliminates all possibil-



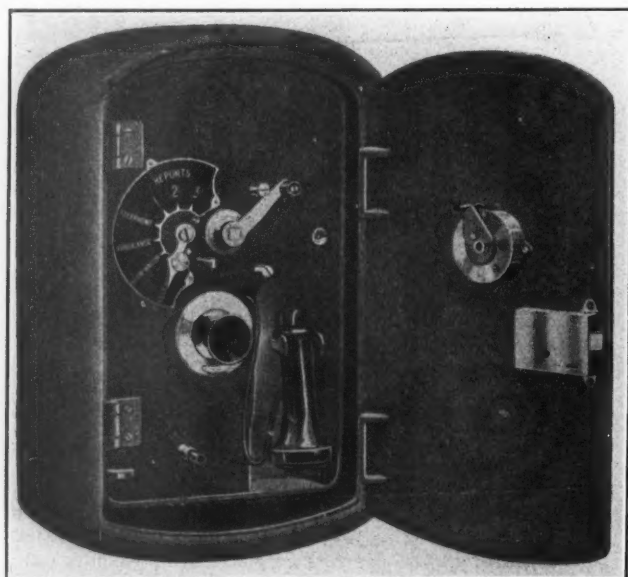
ity of separation between base and wearing surface. The Ransome floor tamper, illustrated here-with, is one of a class of value in finishing the concrete base for sheet asphalt or other bituminous pavement. In a recent report to R. Keith Compton, chairman of the Baltimore Paving Commission, Dow & Smith, chemical engineers, New York City, referred to the use of corrugated tampers in the following words:

"If a sufficiently rough surface cannot be obtained by the use of 2½-inch stone in the concrete, the surface of the concrete can be made rough by the use of corrugated tampers. This is practised by several contractors throughout the country with excellent results. These tampers have the effect of driving the coarser stones into the concrete and at the same time leaving the surface rough but of such a character that there is no loose material."

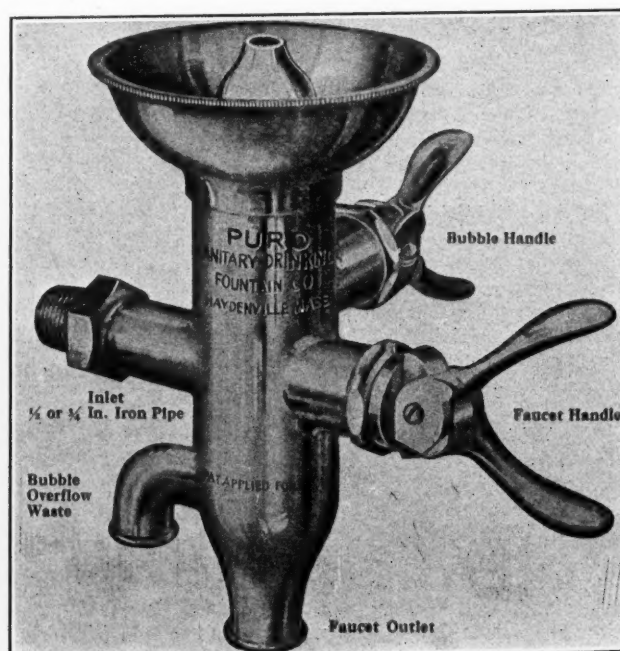
Stirling Destructor at Halifax.

The Stirling refuse destructor at Halifax, built by the Griscorn-Russell Company of New York has been finished and tested. The destructor consists of one unit of three grates. It is fed from a container at the top. There are 75 square feet of grate area and combustion chamber. The rated capacity of the destructor is 50 tons in 24 hours. A 200-horsepower boiler is provided to generate steam for power purposes. An official report on test made March 8 is as follows:

Duration of test, 4 hours 8 minutes; number of grates, 3; total grate area, 75 square feet; Abendroth-Root water-tube boiler heating surface, 2,034 square feet; total amount refuse consumed, 24,072 pounds; composition house ashes (75 per cent.), 18,054 pounds; composition wet garbage (16 per cent.), 3,852 pounds; composition rubbish (9 per cent.) 2,166 pounds; pounds burned per square foot grate per hour, grate No. 1, 89; ditto No. 2, 73; ditto No. 3, 71.5; ditto, average, 77.7; temperature feed water, 40 degrees; boiler pressure (gauge), 145 pounds per square inch; factor of evaporation, 1.227; total water evaporated, 29,992 pounds; evaporation from and at 212 degrees, 36,800 pounds; equivalent boiler horsepower, 258; equivalent evaporation from and at 212 degrees per pound refuse consumed, 1.52; temperature combustion chamber (Fah.), maximum, 1,547 degrees; ditto, minimum, 1,255 degrees; ditto, average, 1,357 degrees; percentage CO₂, average, 9.44; maximum, 12.5; minimum, 7.25; air pressure in ash pit, 2.75 inches water gauge; from regenerator, 3.75 inches water gauge; into regenerator, 4.25 inches water gauge; temperature outside air, 30 degrees; temperature air from regenerator, 180 degrees; temperature gases into regenerator, 475 degrees; r. p. m. fan, 375; duration clinkering periods, 8 minutes; interval between clinkering periods, average, 92



POLICE ALARM BOX—EQUIPPED FOR CITIZENS' KEYS.



SUBSTANTIAL FOUNTAIN AND FAUCET.

minutes; labor cost per ton, city wages, 28c. The combustion of refuse at the test was at the rate of 70 tons in 24 hours, exceeding the guaranteed capacity by 40 per cent. The calorific value of the refuse was very low, the analysis of the residues on one test showing 40 per cent. of fine dust, 37 per cent. of ash and 23 per cent. of clinker.

Electric Automobile for Collecting Street Sweepings.

An electrically propelled motor dust cart, shown in the illustration, has been placed on the market by a German manufacturer. The body is end dumping, the control being by means of a lever at the driver's seat. The body is so balanced that tipping is easy. According to German practice, one man only goes with the vehicle, attending to both loading and unloading. The single wheel in front makes it possible to drive the car about on crowded streets. The car may also be used as a sand distributor, a small motor operating a distributing device. The wagon body can be removed and its place taken by a seat. Power is supplied by an electric battery, which will carry it about 50 miles at a speed of 12 to 15 miles per hour.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. The tonnage offering is light. Except on certain of the smaller sizes prices are weak. Quotations: 4-inch, \$28.50; 6 to 12-inch, \$26.50; 16-inch and up, \$25.50. Birmingham. There has been no further curtailment in production, but even at the present rate there is considerable accumulation. Quotations: 4-inch, \$21; 6-inch, \$20 and \$21. San Francisco. This city will soon be in the market for 2,400 tons. A number of towns have voted bonds for water works extensions but have not sold them. New York—The general demand is not as active as it has been. Quotations: 6-inch, carloads, \$23 to \$24.

Lead.—Market is dull but strong. Quotations: New York, 4.35c.; St. Louis, 4.20c.

Insulated Wire.—The Safety Insulated Wire & Cable Company, of New York, finds general business conditions in its line exceptionally good at present, the monthly sales figures for the

past quarter showing increases of from 75 to 200 per cent. over average figures. Last year's total sales amounted to about \$3,350,000, and to date this year sales amounting to \$2,200,000 have been made. Approximately 5 per cent. of the total sales represent exports, and of these the greater proportion go to South America.

Dunn Wire-Cut-Lug Brick.—From the returns for the year 1912 of the paving brick manufacturers who are members of the National Paving Brick Manufacturers' Association, it appears that licensed manufacturers of wire-cut-lug brick (licensed under the Dunn patents) produced 53 per cent. of the total yardage of vitrified paving brick produced by all the members, although in number they are less than one-third. The company points to this as giving some idea of the size and importance of the manufacturers who have taken licenses under the Dunn patents.

Autocars for Extraordinary Service.

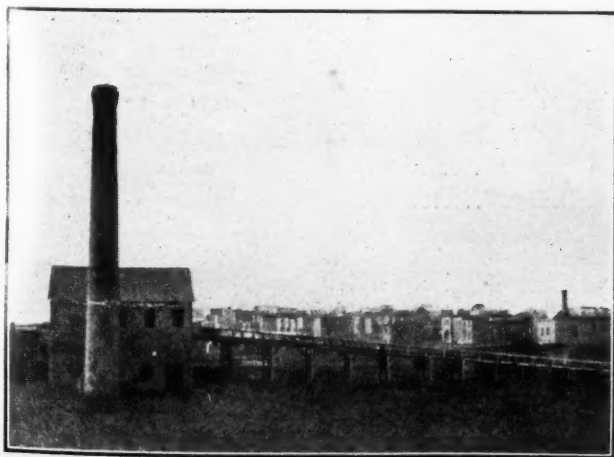
—Statements of hauling costs are published everywhere nowadays, showing the economy of motor traction. The main point is often overlooked, that motor trucks make possible the doing of things that could not be done at all without them. No greater emergencies in transportation service are likely to arise than those in connection with the encampment at Gettysburg where the fiftieth anniversary of the battle will soon be celebrated. There, in a few days, a village of 5,000 persons will be transformed into a tent city housing 150,000. For assistance in getting ready for the big event and for taking care of transportation problems during the encampment, the Federal government has called upon the Autocar Company, of Ardmore, Pa. Fifteen Autocar motor trucks have been engaged and will figure largely in the manifold duties of the quartermaster's department on the field.

Gasoline Furnaces.—The Monarch Engineering & Manufacturing Company, Baltimore, Md., and the Quigley Furnace & Foundry Company, Springfield, Mass., have divided between them the rights, patterns, drawings and blue prints of the bankrupt Rockwell Furnace Company, New York. The Monarch Company will hereafter

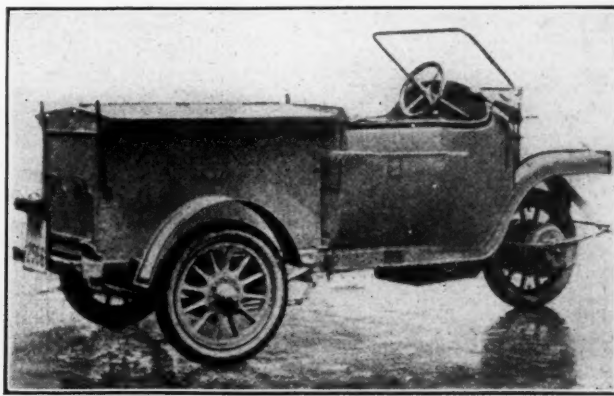
manufacture the Rockwell oil and gas appliances and other apparatus in connection with melting furnaces, including the Rockwell type of double chamber and simplex furnaces, burners of all kinds, portable heating equipment for forge and rivet work, lead melting, etc., and pumps, blowers and soft metal equipment. The Quigley Company will manufacture other furnaces of the Rockwell list for general heating purposes. Each of these companies will hereafter be able to supply the repairs needed for the furnaces it has taken over.

D. C. Watt-hour Meters.—The Duncan Electric Manufacturing Company, Lafayette, Ind., states that its business in direct-current watt-hour meters has grown to such proportions that for over seven months it has been obliged to operate its plant until 9 o'clock for five nights a week and is still behind on its orders. On this account the company found it necessary to double its factory space. Work was commenced several weeks ago upon a new building which is to be four stories high and of the most modern construction. In addition to this new factory building, there is also being built a new testing laboratory which will be equipped with motor-generators, storage batteries and a complete line of modern standardizing instruments. Besides these additions to its manufacturing facilities, the company has been making plans for enlarging its sales force. Within a few weeks it will have agents in twenty of the largest cities in the country, including those which have represented it at Boston, New York and Chicago for many years. Owing to the introduction of a considerable amount of automatic machinery and extensive improvements in its manufacturing methods, the Duncan company made a substantial reduction in the price of its watt-hour meters on May 1, as a result of which a material increase has taken place in the volume of its business.

Drilling Outfits.—The Keystone Driller Company, Monadnock Block, Chicago, Ill., have recently received the following order: Downie deep well pumping machinery for Hildreth, Neb.; deep well pumping outfit for institution at Oneida, Wis.; deep well pumping outfit for a factory at Virgil, Ill.



STIRLING DESTRUCTOR AT HALIFAX.



AUTO FOR COLLECTING STREET SWEEPINGS.

WEEKLY CONTRACT NEWS

ADVANCED INFORMATION

BIDS ASKED FOR

CONTRACTS AWARDED

ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Mo.	Kansas City	June 30	Macadam road, 5 miles	M. Gilday, Clk.
Wash.	Olympia	June 30	Highway, 3 miles	Comrs.
Minn.	Fairmount	1.30 p.m., June 30	State road	H. C. Nolte, Co. Aud.
N. Y.	New York	2 p.m., June 30	Repairing sheet asphalt, repaving with granite, etc.	G. McAneny, Boro. Pres.
Wis.	Portage	Noon June 30	Granite macadam, 23,642 sq. yds.	W. B. Washburn, City Clk.
Ill.	Paris	2 p.m., June 30	Brick pavement, 686 sq. yds.; 9,028 lin. ft. curb	Chas. Sullivan, Hwy. Comr.
la.	Oskaloosa	8 p.m., June 30	Vitrified brick, 1,420 sq. yds.	T. H. Carlin, City Clk.
Pa.	Corapolis	June 30	Paving number of streets	E. C. Harper, Boro. Sec.
Ill.	Elgin	10 a.m., June 30	Vit. brick, 5,500 yds.	A. Fehrman, Mayor.
Mo.	Poplar Bluffs	7.30 p.m., June 30	Vit. brick, 36,000 yds.; cost, \$88,000	E. C. Thomes, City Eng.
O.	Clyde	June 30	Vit. brick, cost \$10,000	F. Shaw, City Clerk.
O.	Euclid	June 30	Vit. brick	H. Shoaff, Vil. Clerk.
Wash.	Everett	2 p.m., June 30	Roads	Co. Aud.
Utah	Ogden	10 a.m., June 30	Sidewalks	H. J. Craven, C. Eng.
la.	Eagle Grove	7.30 p.m., June 30	Pavement, 30,000 yds.	Sam Middleton, C. Clk.
Mich.	Sturgis	June 30	Vit. brick, 5,000 sq. yds.	C. W. Coy, C. Clk.
O.	Elyria	June 30	Macadam, 3,970 ft., cost \$5,850	T. L. Gibson, Co. Surveyor.
Okla.	Okmulgee	7.30 p.m., June 30	Bit. concrete, 39,000 sq. yds.	J. G. Lyons, Comr. Pub. Wks.
Mo.	Kansas City	June 30	Macadam roads, 10 miles, 3 jobs	L. M. Gilday, Clk.
Cal.	Sacramento	2 p.m., June 30	State highways, 29 miles	W. R. Ellis, Sec. Comm.
Pa.	Crafton	5 p.m., July 1	Paving McMunn ave.	J. S. Haring, Boro. Engr.
Wis.	Burlington	July 1	Paving Geneva st.	City Clerk.
N. J.	Elizabeth	8.30 p.m., July 1	Vit. brick, 18,000 yds.	W. P. Neafsey, Comr.
Ind.	Fort Wayne	10 a.m., July 1	Highway, 3 miles	H. Brown, Co. Aud.
Ala.	Aniston	July 1	Macadam, 1½ miles; cost, \$4,000	W. S. Keller, State Hwy. Eng.
O.	Youngstown	July 1	Grading street	W. H. McMullan, Clk.
Pa.	Milton	7 p.m., July 1	Concrete curbing	J. A. Beck, Ch. Str. Com.
N. J.	Paterson	4 p.m., July 1	Wood block or asphalt, 10,500 sq. yds.; storm sewer	Bd. Pub. Wks.
N. Y.	St. George	S. I. Noon, July 1	Improving Castleton Blvd.	Geo. Cromwell, Pres.
N. J.	Elizabeth	9.30 p.m., July 1	Asphaltic concrete, 100,000 sq. yds.	W. P. Neafsey, Comr.
R. I.	Cumberland	noon, July 2	Paving gutters, etc.	J. V. Broderick, Twn. Clk.
Ark.	Conway	3 p.m., July 2	Paving, 12,000 sq. yds.; 700 ft. storm sewer	H. B. Ingram, C. S. Impt. Dis.
N. Y.	Mechanicsville	July 2	Vit. blk., 11,800 sq. yds.	A. B. Smith, Vil. Clk.
O.	Columbus	2 p.m., July 3	Water bound macadam, 2.40 miles, Springfield Twp.; water bound macadam, 1.86 miles, Thorn Twp.	J. R. Marker, State H. Comr.
Ind.	Fort Wayne	7.30 p.m., July 3	Imp. and paving number streets	F. T. Benoy, Ch. B. P. W.
O.	Columbus	2 p.m., July 3	Concrete, 2.64 miles in Milton	J. R. Marker, State Hy. Comr.
O.	Amherst	noon, July 5	Concrete bit. surface, 1.10 miles in Chester	Henry Miller, Vil. Eng.
Wis.	Racine	10 a.m., July 5	Paving number of streets	P. H. Connolly, Ch. B. P. W.
Ind.	Vevay	1 p.m., July 5	Paving, 1,076 yds.	G. W. Smith, Co. Aud.
N. C.	Chapel Hill	July 7	Highway, 7 miles	Good Roads Comm.
N. J.	Bloomfield	July 7	Imp. 10 miles highway	R. F. Davis, Town Clk.
N. C.	New Bern	noon, July 7	Bitulithic, 2,750 sq. yds.	R. E. Snowden, Hwy. Engr.
Ind.	Jeffersonville	10 a.m., July 7	Road ditches, several miles	G. W. Stoner, Co. Aud.
N. J.	Westfield	July 7	Paving two roads	C. Clk.
N. Y.	Elmira	11 a.m., July 7	Improving East Broad St.	O. H. Gardner, City Clk.
Ariz.	Clifton	July 7	Vitrified brick, 13,000 sq. yds.	Bd. of Supervisors.
Pa.	South Bethlehem	July 7	Highway	City Clk.
Va.	Marion	July 7	Paving several streets	Clk. Bd. Supervisors.
Pa.	Eddystone	10 a.m., July 7	Macadam, 47 miles; grading, 30 miles	H. Blair, Chief Burgess.
N. J.	Elizabeth	3 p.m., July 8	Concrete pavements	J. L. Bower, Co. Engr.
Miss.	Clarksdale	July 8	Hard surface pavement, 11,319 sq. yds., etc.	M. J. Bouldin, Mayor.
Kan.	Olathe	noon, July 8	Asphaltic concrete, 26,000 sq. yds.	A. J. Calvert, Ch.
Ind.	Wabash	1.30 p.m., July 8	Imp. road	D. Showalter, Co. Aud.
Ind.	Monticello	10 a.m., July 8	Gravel road, Chester Township	A. G. Fisher, Co. Aud.
Ind.	Marion	July 8	Highways	E. H. Kimball, Co. Aud.
Miss.	Grenada	July 8	Stone and gravel roads	L. B. James, C. Recorder.
N. D.	Bismarck	July 8	Vit. brick, wood, &c., 14,000 yds.	Co. Comrs.
Ind.	Vincennes	2 p.m., July 8	Improving roads	J. T. Scott, Co. Aud.
Ind.	Columbus	10 a.m., July 8	Gravel roads	P. Sater, Co. Aud.
Ind.	Evansville	10 a.m., July 10	Paving highway	C. P. Beard, Co. Aud.
N. J.	Newark	10 a.m., July 10	Granite block pavement on Bloomfield Ave.	F. A. Reimer, Co. Engr.
Ind.	Crown Point	Noon, July 10	Gravel road	C. A. Johnson, Co. Aud.
O.	Toledo	10 a.m., July 11	Imp. road	C. J. Sanzenbacher, Co. Aud.
Pa.	Pittsburgh	10 a.m., July 11	Paving 3 highways	R. J. Cunningham, Co. Compt.
O.	Cincinnati	noon, July 11	Repairing roads, culverts	S. Struble, Pres.
D. C.	Washington	July 12	Wood block; cost \$15,000 (in Brooklyn yard)	Navy Dept.
O.	Greenwich	July 14	Brick, tar macadam, 5,701 sq. yds.	F. H. Daniels, Vil. Clk.
Ind.	South Bend	11 a.m., July 14	Imp. highway	C. Sedgwick, Co. Aud.
Ind.	South Bend	11 a.m., July 14	Paving highway	C. Sedgwick, Co. Aud.
Ind.	Fort Wayne	10 a.m., July 15	Gravel road, 5½ miles	C. H. Brown, Co. Aud.
O.	Cincinnati	noon, July 18	Oiling roads	S. Struble, Pres. Comrs.
la.	Bloomfield	July 24	Brick, asphaltic concrete, Portland cement, 5,000 sq. yds.	A. B. Welch, City Clk.
SEWERAGE				
Canada	Ft. Qu'Appelle	noon, June 30	Sewers and disposal works	Bd. of Trustees.
S. D.	Howard	June 30	Sewerage system and disposal plant	G. F. Jehn, C. Aud.
Pa.	Hammonton	June 30	Sewers and disposal plant	Rd. Sewerage.
O.	Port Clinton	Noon, June 30	Sewer several streets	J. A. Singler, Clk.
S. C.	Walterboro	July 1	Pipe sewers, 4 miles, 8 to 12-in.	S. N. Johnston, Eng.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
N. J.	Newark	July	1.. Three centrifugal pumping engines.....	J. S. Gibson, Clk. Comrs.
Canada	The Pas	6 p.m., July	1.. vit pipe, 10,000 ft.; also steel pipe, power house, pole line.....	H. H. Elliott, Secy.
Ia.	Eagle Grove	7.30 p.m., July	1.. Tile sewer, 1,100 ft. 8 and 10 in.	S. Middleton, Clk.
O.	Bexley	July	1.. Sewage treatment plant	G. E. Frey, Vil. Clk.
N. J.	Paterson	4 p.m., July	1.. Sewers	T. S. Standeven, City Clk.
Minn.	Duluth	10 a.m., July	1.. Sanitary sewers	R. Murchison, Comr.
N. Y.	Schenectady	July	2.. Sewage pumping station, machinery and force main.....	Bd. of Contract.
S. D.	Mitchell	8 p.m., July	7.. Sewers, 1,331 ft. 8-in.....	N. H. Jensen, C. Aud.
Minn.	Winona	July	7.. Vit. pipe, 1,100 ft. 8-in.....	H. B. Walling, C. Eng.
S. D.	Platte	July	7.. Constrn. drains	F. P. Swann, City Aud.
Wis.	Janesville	2 p.m., July	8.. Vit. pipe, 2,300 ft. 8-in., etc.....	J. A. Fathers, Ch. B. P. W.
N. C.	Dunn	July	8.. Sewers, 6 miles, 8 to 24-inch.....	M. L. Wade, Jr., Mayor.
Ind.	Geneva	9 a.m., July	9.. Pipe sewers, 10 to 36-inch, 7,218 ft.; concrete headwall.....	W. A. Wells, Twn. Clk.
N. Y.	Schenectady	2.30 p.m., July	9.. Sewers	F. E. Johnson, Sec. Bd. C. & N.
O.	Shelby	noon, July	9.. Sewage treatment plant.....	B. Flx, Vil. Clk.
N. J.	Newark	2 p.m., July	15.. Submerged concrete pipe, 4,500 ft., etc.....	Passaic Valley Sewage Com.
La.	New Orleans	July	15.. Extension to pumping station	F. S. Shields.
O.	Cambridge	July	15.. Sewage disposal plant	J. A. Leyshon, Dir. P. Serv.
N. Y.	White Plains	2 p.m., July	21.. Sewer treatment plant.....	Bronx Valley Comm.
Mo.	Webster Groves	July	21.. Vitrified pipe and disposal plant; cost, \$20,000.....	W. A. Fuller, C. Eng.
La.	New Orleans	July	23.. Extending drainage pumping station.....	F. S. Shields, Secy.
La.	New Orleans	July	23.. Underground conduit, gates, etc.....	F. S. Shields, Secy.
N. J.	Newark	2 p.m., July	29.. Sections 6 & 19, main intercepting sewer.....	Passaic Val. Sew. Comrs.
WATER SUPPLY				
Ia.	Atlantic	June	30.. Connecting suction lines of city water works.....	T. E. Nichols, City Clk.
O.	Euclid	June	30.. C-1 pipe	F. H. Shoaff, Vil. Clerk.
Cal.	Burlingame	June	30.. Distribution system	Bd. of Trustees.
N. C.	Goldsboro	July	1.. Pumping station, filter plant	Mayor.
N. C.	Cherryville	July	1.. Pumping station, electric pumps, reservoir, steel tanks, cast-iron pipe, 5 miles, etc.....	J. B. Houser, Mayor.
Ga.	Royston	July	1.. Water works and sewers.....	C. B. Wellborn, Mayor.
Egypt	Cairo	July	1.. Furn. equip'm't for pump'g station, 7,000,000 meters.....	Pub. Works Ministry.
S. C.	Waterboro	July	1.. Reservoir, tank, cast-iron pipe, etc.....	Mayor.
Ind.	Decatur	July	1.. Concrete reservoir	H. M. Devoss, C. Clk.
O.	Akron	noon, July	1.. Cutting-in sleeves and valves.....	R. M. Pillmore, Dir. P. S.
Wis.	Dodgeville	6 p.m., July	1.. Concrete reservoir	B. Thomas, C. Clk.
O.	Youngstown	July	1.. Furnishing material and laying 30 and 36-in. water line.....	W. H. McMillan, Clk.
Minn.	Lake City	July	1.. Reinforced concrete reservoir, 500,000 gals.; 9,000 ft. 6 and 12-inch c-i pipe	E. R. Paterick, City Clk.
Canada	Calgary	5 p.m., July	2.. Hydrants and valves, 145.....	J. M. Miller, C. Clk.
O.	Glendale	noon, July	2.. Cast-iron pipe, tank, tower, etc.....	P. D. Keys, Ch.
Ia.	Decorah	July	2.. Cast-iron pipe, 1,000 ft. 4-in., etc.....	C. Clk.
Fla.	Jacksonville	3 p.m., July	3.. Cast-iron pipe, 1,000 tons lead pipe, brass goods, fire hydrants, meter boxes, tapping sleeves, etc.....	W. M. Bostwick, Jr., Ch.
Miss.	Gulfport	July	7.. Artesian well	F. S. Hughes, Clk.
Cal.	Tulare	July	7.. Pumping plant	E. Oakford, City Clk.
S. D.	Mitchell	8 p.m., July	7.. Cast-iron pipe, 950 ft.....	H. N. Jensen, City Aud.
O.	Painesville	noon, July	8.. Water purification works, 3,000,000 gal. capacity.....	S. A. Haskell, Dir. Pub. Ser.
LIGHTING AND POWER				
N. J.	Lyons Farms	8 p.m., June	30.. Incandescent lamps, 78, for Hillside Twshp.....	G. Compton, Clk.
N. J.	Newark	4 p.m., June	30.. Street lights, 219 32-CP., in Union Twshp.....	G. Compton, Twshp. Clk.
Canada	Winnipeg	11 a.m., June	30.. Ornamental trolley and lamp posts.....	M. Peterson, Secy.
Ind.	Laporte	June	30.. Boulevard light system, 120 posts.....	Wm. Krueger, C. Clk.
Pa.	West View	July	1.. Lighting borough	W. H. Skiles, Pres.
Man.	Winnipeg	11 a.m., July	2.. Two horizontal turbine pumps.....	M. Peterson, Sec. Bd. Control.
Kan.	Topeka	9.30 a.m., July	7.. Ornamental lighting, several streets.....	C. B. Burge, C. Clk.
N. J.	East Orange	8 p.m., July	7.. Police telegraph system.....	J. H. Deignan, Secy.
Minn.	Detroit	July	7.. Ornamental electroliters, 60.....	E. J. Bestick, C. Clk.
Ga.	La Grange	5 p.m., July	8.. Municipal water gas plant	J. D. Edmundson, Mayor.
Sask.	Regina	noon, July	12.. Two motor driven centrifugal pumps.....	City Comrs.
Miss.	Biloxi	July	15.. Lighting city	Pascal Meaut, Ch. Light. Com.
Mo.	Albany	July	15.. Electric light improvements; cost, \$19,000.....	C. E. Gibboney, Clk.
Neb.	Grand Island	July	16.. Cable and 131 poles.....	W. F. Downer, Eng.
N. Y.	Binghamton	4 p.m., July	16.. Municipal electric lighting plant.....	F. M. Hopkins, City Clk.
FIRE EQUIPMENT				
Pa.	Lansdowne	8 p.m., June	30.. Motor triple comb. apparatus.....	C. T. Moore, Ch.
Ky.	Maysville	June	30.. Fire hose, 1,000 ft.....	City Clk.
Mass.	Holyoke	July	1.. Two motor comb. chemical and hose wagons.....	J. Hildreth, Sec. Comr.
D. C.	Washington	2 p.m., July	7.. Gasolene pumping engine	C. H. Rudolph, Comr.
O.	Cleveland Heights	July	8.. Motor comb. hose and ladder truck.....	H. H. Canfield, Vil. Clk.
O.	Akron	noon, July	15.. Auto supply wagon	D. P. Stein, Dir.
BRIDGES				
O.	Cleveland	11 a.m., June	28.. Bridge work	J. F. Goldenbogen, Co. Clk.
Ky.	Lexington	10 a.m., June	28.. Bridge over creek.....	C. F. Estill, Supt.
Pa.	Tazewell	noon, June	30.. Concrete bridge	Co. Supervisors.
N. H.	Newport	2 p.m., June	30.. Reinforced concrete bridge	W. D. McLain, Ch. Bd. Imps.
N. H.	Portsmouth	noon, July	1.. Number of bridges.....	E. B. Hawks, Chmn. Comm.
Ky.	Louisville	10.30 a.m., July	1.. Concrete bridge	J. R. Gaines, County Eng.
N. J.	Jersey City	11 a.m., July	2.. Painting, paving, etc., bridge.....	G. W. Caparn, Ch. Comm.
O.	Cleveland	11 a.m., July	2.. Concrete bridge	G. F. Goldenbogen, C. Clk.
O.	Carthage	noon, July	3.. Repairing abutment and span concrete bridge.....	A. Reinhardt, Clk.
Pa.	Broughton	July	5.. Bridge and approaches.....	H. L. Snyder, Secy.
Penn.	Lebanon	July	7.. Concrete bridge	City Eng.
Cal.	Los Altos	July	7.. Concrete bridge	J. G. McMillan, Co. Surv.
N. J.	Elizabeth	3 p.m., July	7.. Reinforced concrete arch bridge	J. L. Bower, Co. Engr.
Ind.	Vincennes	2 p.m., July	8.. Bridge	T. Scott, Co. Aud.
O.	Cleveland	11 a.m., July	9.. Concrete arch bridge	J. F. Goldenbogen, Clk.
Del.	Wilmington	noon, July	15.. Concrete bridge, 2,500 cu. yds.....	B. F. Groves, Pres. Court.
Ga.	Macon	9 a.m., July	15.. Four concrete bridges, 100 ft. long.....	J. R. Bowdre, Co. Clk.
Wis.	Janesville	July	15.. Two reinforced concrete bridges.....	J. A. Father, Ch. Bd. Pub. W.
Ind.	Marion	2 p.m., July	17.. Number of bridges.....	E. H. Kimball, Co. Aud.
O.	Cincinnati	noon, July	18.. Bridges	S. Struble, Pres. Comrs.
MISCELLANEOUS				
Wash.	Everett	2 p.m., June	30.. Five passenger automobile.....	Co. Comrs.
Ind.	Fort Wayne	3 p.m., June	30.. Dredge for hoisting road material.....	H. E. Branning, Twshp. Trste
		2.30 p.m., June	30.. Retaining wall	P. H. S. Hendricks, Dir.
Pa.	Harribsurg	2.30 p.m., July	1.. Concrete dam, 1,150 cu. yds.....	E. C. Thompson, Sec. Bd.
O.	Cleveland	July	1.. Traction engine, excavator and loader for Water Dept.....	W. H. Kirby, Sec.
Wis.	Janesville	July	1.. Motor cycle	City Clk.
Ala.	Anniston	July	1.. Iron fence, 330 lin. ft.....	W. F. Hanna, Pres.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
La.	Oberlin	1 p.m., July 2	Jail	R. C. Bond, Pres. Jury.
N. Mex.	Albuquerque	July 7	City Hall	City Engr.
N. Y.	New York	10 a.m., July 7	Motor trucks, one to ten	M. G. Zalinski, Q. M.
N. Y.	Elmira	11 a.m., July 7	Four concrete retaining walls	O. H. Gardner, City Clk.
Del.	Wilmington	Noon, July 8	Two ten-ton rollers, steam or gasoline	B. A. Groves, Pres. Levy Ct.
N. J.	Trenton	July 8	Imp. hospital	City Clerk
N. Y.	Schenectady	2.30 p.m., July 23	Three school buildings	F. E. Johnson, Secy.
La.	New Orleans	noon, July 28	Traveling crane	F. S. Shields, Secy.
Ga.	Fitzgerald	noon, Aug. 12	Jail cells, two	W. R. Walker, Ch.

STREETS AND ROADS

Anniston, Ala.—Oiling of roads of Calhoun County is being discussed.

Anniston, Ala.—It is probable that a delegation from Anniston Chamber of Commerce will appeal to the Board of County Commissioners to at once arrange for improvement of one stretch of good roads in Calhoun county, just east of Coosa River, so that this city can get in commanding position in fight for east to west highway.

Gadsden, Ala.—Ordinance providing for sidewalks on Spring st., which was passed by City council some time ago, has been made final.

Gadsden, Ala.—City Council will proceed to pass paving ordinances whether petitions asking for paving are filed or not.

Gadsden, Ala.—Paving of Walnut st. is being discussed.

Guntersville, Ala.—About \$130,000 county bonds have been sold for road improvements.

Tempe, Ariz.—Various street improvements have been authorized.

Fort Smith, Ark.—Extensive improvements of highways are being planned.

Pasadena, Cal.—Resolutions have been passed for improvement of various streets.

Sacramento, Cal.—City commission has ordered improvements to be made to various streets.

Sacramento, Cal.—Bids for paving Fourteenth st., from B to I sts., have been opened. Henery & Clark bid 11 cts. per ft. The Ransome Concrete Co. bid 12½ cts., and the McGillivray Construction Co. 14½ cts. per ft.

San Francisco, Cal.—Junipero Serra blvd. for a half mile of its length, with Ingleside terraces on one side and the golf links on the other, is to be widened immediately to 100 ft.

Loveland, Colo.—Commissioners of Larimer county will spend \$30,000 for construction of road running north and south through county and on Fall River road.

Meriden, Conn.—Governor has approved of bill authorizing Meriden to issue \$50,000 bonds for sidewalk improvements.

West Hartford, Conn.—Vote has been passed to expend \$14,000 to put Albany avenue in proper shape for acceptance by state as trunk line.

Wilmington, Del.—City Council by unanimous vote passed ordinance providing bond issue of \$150,000 for street and sewer improvements.

Wilmington, Del.—Proposition has been submitted to widen Bayard ave. from 60 ft. to 160 ft. from Delaware ave. to Ninth st., making parkway similar to Grant ave., between Seventh and Third sts., from Ninth st. to parkway already constructed on Grant ave. to Third st., and from Third st. to Union st. woods.

Dade City, Fla.—City council has disposed of city bonds for \$15,000. Money will be used to hard surface number of streets and to install storm sewers.

St. Augustine, Fla.—Now that Gov. Trammell has signed bill authorizing commissioners of St. Johns county to issue \$70,000 in warrants to provide funds for immediate permanent road work, it is confidently expected that board of county commissioners will take definite action at July meeting. According to tentative plans of commissioners, they propose to use \$70,000 fund to place three miles of permanent paving of brick center and shelled sides on John Anderson boulevard and hard surface several of heavy sections. They also propose to complete the road between St. Augustine and Hastings, by way of Elkton and it is also probable that county will donate its share towards constructing permanent concrete bridge across the San Sebastian river connecting St. Augustine with New Augustine.

St. Augustine, Fla.—Widening and extending of Spanish st. is being discussed.

Tampa, Fla.—County Commissioners, who have called special election for June 29 to pass on proposition of bonding county for \$1,000,000 for good roads have now adopted resolution stating that it is their intention, in event issue is authorized, to use brick altogether instead of experimenting with other road-building materials.

Tampa, Fla.—Petitions are being prepared and already have been signed by some 400 interested property owners asking Board of County Commissioners to designate Bayshore boulevard all the way to Port Tampa as thoroughfare to be paved with brick, to width of 16 ft., under new bond issue. Board has discussed paving of Boulevard some four miles of the total nine miles.

Coeur d'Alene, Idaho.—City Council is planning grading and sidewalk of Forest Height Addition; probable cost, \$30,000.

Alton, Ill.—Work soon will be started in Alton for placing big sidewalk contract. Granitoid sidewalks 12 ft. wide will be constructed from Market st. to Washington ave. on both sides of the st. Job will cost \$41,551.60.

Fort Wayne, Ind.—Engineer Price is preparing plans for improvement of State st., from Florida drive east.

Fort Wayne, Ind.—Board of Public Works is considering resolutions on paving of Barr st., from Wallace st. to Creighton ave.; Clay and Monroe sts., from Washington to Holman st., and Fifth st., from Harrison to Wells, and Saville ave., from Indiana ave. to Broadway.

Muncie, Ind.—Four road petitions have been filed with county auditor, one of four being petition for brick road, curb and gutter in Delaware Township and other three being petitions for improvements of established highways by graveling or by crushed stone.

South Bend, Ind.—Petition signed by 27 property holders asking that Dunham st., from Arnold to Harris st., be paved with brick on gravel foundation, has been received by the Board of Works.

South Bend, Ind.—Twenty property holders on Pennsylvania ave. have petitioned board of works for pavement on that street from Michigan to Miami st.

South Bend, Ind.—Committee of the whole of common council has favored ordinance turning St. Louis st. from Madison st. to South Bend ave., over to park board for boulevard.

Council Bluffs, Ia.—Ordinance has been passed authorizing narrowing of various streets.

Des Moines, Ia.—Resolutions have been adopted for various street improvements. Horace Susong, City Clerk.

Sac City, Ia.—City Council has voted to pave 13 blocks on Main and 5th sts.

Topeka, Kan.—Resolutions have been adopted for improvement of various streets.

Winchester, Ky.—City Clerk has been directed to advertise for bids for paving several more streets. Streets ordered paved are: Main, from north side of Boone to north side of French; Boone from Main to Maple; Lexington ave. from east side on Maple to C st.

Lafayette, La.—Citizens have voted \$75,000 bond issue for construction of Parish highways.

Plaquemine, La.—Citizens have authorized \$12,000 bond issue for construction of gravel road from White Castle to upper line of Ascension Parish.

Westbrook, Me.—Order calling for the expenditure of \$689.50 in construction of brick sidewalk on northerly side of Main st., between Maine Central Railroad crossing and Warren ave., has been passed.

Baltimore, Md.—The Reiserstown rd., the only north and south thoroughfare for nearly two miles, will shortly be transformed into a most attractive boulevard, and Pennsylvania ave., from Elgin ave. to Liberty Heights ave., is to be widened to 95 ft.

Baltimore, Md.—Roland avenue, between Deepdene road and Lake avenue, is to be boulevardized at cost of approximately \$70,000.

Baltimore, Md.—Improvement of 28th st., between St. Paul st. and Greenmount ave., is being urged.

Hagerstown, Md.—Commissioners have received from State Roads Commission plans and specifications for 2½ miles of road to be built from Smithsburg toward Waynesboro under Shoemaker act, work to be done by contract. It is proposed to asked for bids to build the road. According to present plans road is intended to connect with Pennsylvania State road at Mason and Dixon line.

Lowell, Mass.—An order to borrow \$8,000 for new sidewalks has been read and adopted.

Grand Rapids, Mich.—Entire lot of \$100,000 Kent County good roads bonds have been sold. Those who took bonds are: Grand Rapids Trust Co., \$10,000; Michigan Trust Co., \$10,000; Old National Bank, \$10,000; Fourth National Bank, \$15,000; People's Savings Bank, \$10,000; Grand Rapids National, \$10,000; Grand Rapids Savings, \$5,000; Commercial Savings, \$5,000; Kent State, \$5,000; United Light, \$5,000, and the Mayor, \$15,000, to be disposed of to any who cares to purchase.

Kalamazoo, Mich.—A. Lenderink, City Engineer, will like to hear from manufacturers of small asphalt repair plants.

St. Paul, Minn.—Board of Public Works has reported favorably on orders for paving Dayton ave., between Victoria and Chatsworth, and Market st., between Third and Fourth.

St. Paul, Minn.—Building of a 36-ft. automobile driveway in center of Summit avenue, from Lexington avenue to River boulevard, distance of about two miles, each side to be curved with standard cement and center to be of asphaltic concrete on a 5-in. concrete base, is being urged.

St. Paul, Minn.—Systematic improvement of roads in Minnesota is being planned; expenditure of \$3,000,000 has been authorized during next two years.

Forest, Miss.—City has issued \$125,000 worth of 6 per cent bonds for good road work.

Laurel, Miss.—City commissioners have approved ordinance providing for paving of about 22 blocks of residence streets adjacent to business district, where wood-block paving has just been laid. Sheet asphalt instead of wood blocks will be laid on residence streets.

Magnolia, Miss.—Contract for grading and graveling about 60 miles of Pike County will shortly be let.

Tupelo, Miss.—Bonds in sum of \$40,000 have been sold for road improvements in Second district.

Woodville, Miss.—City will spend big sum in road improvements.

Billings, Mont.—City Council is considering paving of Minnesota and cross streets at estimates of cost as follows: Brick, \$85,825; wood block, \$82,475; bitulithic, \$60,450; Dolarway, \$50,760.

Camden, N. J.—Ordinance has been passed authorizing sale of \$100,000 worth of street improvement bonds.

Camden, N. J.—Ordinance has been passed authorizing the narrowing of portions of Rogers and Chestnut aves. and Maple terrace.

Elizabeth, N. J.—Ordinance has been passed ordering brick paving on Clark st.; also ordinance authorizing various street improvements.

Elizabeth, N. J.—Ordinance has been adopted for paving of Clark place.

Jersey City, N. J.—Specifications for improvement of 17th street, 19th street and 29th street, between Broadway and Avenue E, and for 29th street, between Boulevard and Avenue A, have been approved and city clerk has been directed to advertise for bids, to be received at next meeting.

Passaic, N. J.—County engineer has been authorized to advertise for bids for improvement of Midvale-Greenwood lake road as soon as plans and specifications are approved by state commissioner.

Paterson, N. J.—Resurfacing of Main st. with either asphalt or wood block between river and Grand st. is being planned.

Rahway, N. J.—Paving of Irving street is being discussed.

Amsterdam, N. Y.—Board of Supervisors of Montgomery has decided to change class of construction of Palatine-Fonda state highway, known as state road, No. 5,125, from gravel, as proposed in present specifications, to stone sub-face with crushed stone top.

Binghamton, N. Y.—It is almost certain that 1914 share of Broome county in \$50,000,000 good roads bonds issue will be approximately \$168,000. State Department has announced that in 1914 one-fifth of total issue will be spent in State wide construction.

Mamaroneck, N. Y.—Electors of town of Mamaroneck, outside of incorporated limits of village of Larchmont and Mamaroneck, will vote at special election, July 2, on proposition to spend \$10,000 for sidewalks in unincorporated sections of town. Sidewalks are to be constructed on Oak st., Myrtle ave., Chatsworth ave., Palmer ave., and on the Boston Post rd., from city of New Rochelle to village of Larchmont, and from easterly line of the village of Larchmont to line of village of Mamaroneck.

Manhasset, L. I., N. Y.—Bids have been received by Town Board for construction of highways in Great Neck, Port Washington and Manhasset, for which \$88,000 was voted for at election in 1912. Roads to be improved are Middle Neck road, Great Neck, Susquehanna ave., Great Neck Station, Manhasset, Bayview and Highland aves., Manhasset and Carleton, Second, Third and Fifth aves., Port Washington. Successful bidders will be announced shortly.

Batavia, N. Y.—There will be 1.97 miles of pavement 45 ft. wide laid, which will cost approximately \$120,000.

Schenectady, N. Y.—City Engineer W. Thomas Wooley has prepared or is preparing plans for construction work which will cost in aggregate, approximately \$1,151,800. Of this work \$500,000 will be spent for street improvements 27 streets are now under contract to be paved and 35 more have been designated. This will make total of 200,000 sq. yds. of paving this year, greatest part of which will be asphalt. On grades brick will be used.

Dayton, O.—Advertisement will be made for bids for repair of local streets.

Defiance, O.—Petition is being circulated among abutting residents of East Second st., asking that street be paved this summer.

Findlay, O.—City Council has ordered bonds sold for improvement of several streets, amounting to about \$20,000. With completion of this work Findlay will have nearly 25 miles of paved streets.

Toledo, O.—County Commissioners have authorized repair of Bancroft st. road from city line to Ten Mile Creek in Washington township, at expenditure of \$10,500.

Toledo, O.—First step towards repaving Summit st., from Cherry to Elm sts., with a smooth pavement has been taken by Public Improvement Committee when petition for paving was approved by Public Improvement Committee.

Troy, O.—Bonds in sum of \$100,000 will be sold July 7, of which \$30,000 will be for roads and \$70,000 for bridges.

Madill, Okla.—Each township of Marshall County has been represented by member of Township Board at good roads meeting held here. It was practically agreed at meeting that each township in county will call for election to vote on issue of \$20,000 bonds per township for purpose of building good roads, draining same property and installing culverts. Competent engineer to be commissioned by Highway Commissioner will have charge of work.

Chester, Pa.—Common Council has passed Bill No. 19, an ordinance providing for curbing and paving sidewalks on south side of Third st., from Madison st. to Morton ave., on north side of Third st., from Caldwell st. to west side of Hinkson st., on south side of Third st., from Caldwell st. to east side of Hinkson st. on both sides of Morton ave., from Third st. to Front st., and the east side of Hinkson st. from Third st. to Fourth st. Also Bill No. 23, an ordinance providing for paving of Congress ave., from Upland st. to Crosby st., and Riley st., from Central ave. to Tilgh-

man st., and Bill No. 20, an ordinance providing for the curbing and paving of sidewalks on the north side of Mary st., from Ulrich st. to Pusey st.; both sides of Fourth st., from Hinkson st. to Melrose ave., Edgmont ave., from Front st. to Second.

Chester, Pa.—Following are bids received for street paving in city: Barber Asphalt Co. for Trinidad natural lake asphalt, \$2.41 maximum per sq. yd.; \$2.08 minimum per sq. yd.; Atlantic Westrumite Co., for "Westrumite," \$2.16, \$1.63; Continental Public Works Co., for "Aztec" asphalt cement, \$2.50, \$1.89; Continental Public Works Co. for asphalt cement-bituminous wearing surface, \$2.19, \$1.57; Pew & Hubbard Co., for "Rockmack" (one street only), \$1.91; Union Paving Co., for "Filbertine"—Bermudez asphalt, \$2.08, \$1.75; J. F. Chand-lee Co., for stone filled, bituminous wearing surface (3 bids), (a) Trinidad Lake asphalt, \$2.22, \$1.69; (b) Montezuma asphalt, \$2.24, \$1.71; (c) Pioneer or Bermudez asphalt, \$2.31, \$1.78; John Hanna & Sons, for vitrified (Grafton) block, \$2.54, \$2.46.

Cresson, Pa.—Cresson Council will hold a meeting when matter of paving Keystone ave. and fixing the millage will come up for consideration and probably final action.

Erie, Pa.—Ordinances have been passed for grading, draining and curbing of various streets.

Erie, Pa.—Bids have been rejected for paving of French st., from 18th to 19th sts., for which J. and M. Doyle were low at \$1.70 a yard. Action was deferred on the paving of Plum st., from Park ave. to Third st., for which Mayer Brothers were low bidders at \$1.70, and on Sixth st. and French and Holland sts. Low bid of J. and M. Doyle, at \$1.70 a yard, for paving Sasafra st., from Second to Front st., was also rejected as being too high.

Johnstown, Pa.—Various street improvements have been petitioned for.

Johnstown, Pa.—Dale council has held a special meeting for purpose of considering completion of street improvements. Work will be started soon on completing paving that was not finished last fall. Extreme ends of streets and alleys will be gone over with road machine.

Mareus Hook, Pa.—Engineers of borough have figures out approximately what amount of paving, grading and guttering will require in putting Market st. and McClenachan terrace in good shape with modern roadway. There will be 2,500 cu. yds. of grading, 14,000 sq. yds. of concrete base and wearing surface, laying of 1,500 ft. of drain pipe, building of 15 drop inlets, construction of 1,200 ft. of concrete curb and about 6,800 ft. of concrete gutter.

Pittsburgh, Pa.—City planning commission has submitted recommendations for 60-ft. highway to be known as Princeton boulevard, from Frankstown avenue to Washington boulevard, widening Penn avenue from 11th street to Butler street, improving Thomas boulevard from Lexington avenue to city line, extending Hamilton avenue from Lambert street to Frankstown avenue at Everett street, and widening of Diamond street and general disposition of streets at juncture of proposed Monongahela boulevard at Ross street.

Reading, Pa.—Board has decided to pave with wood blocks intersection Second and Penn sts. and highways on north and south sides of Penn st., between Front and Second sts.: Second st., from the south building line of Penn st. east to south building line of Penn st. going east; Second st., from north building line of Penn st. to south building line of Penn st. going west. Pave with vitrified brick Second st., from south building line of Penn st. going west to north building line of Cherry st.

Charleston, S. C.—Resolutions have been adopted for improvement of various streets.

Deadwood, S. D.—At special meeting of County Commissioners bids were opened for contract of building of new road from Lead to the Spearfish canyon crossing, nine miles. Road is to be used for access to Spearfish canyon by auto and will be of great benefit to tourists to Black Hills. Commissioners recently appropriated \$30,000 for construction of road and bid was let to W. H. Butler and W. J. Fogelson of Lead for \$27,700, work to be commenced at once.

New Berry, S. C.—Asking for better roads between the 16 and 18 mile posts in Dutch Fork section is substance of petition received by Supervisor of Richland county, Andrew Patterson, Jr., from citizens of Chapin. Petition will be

placed before County Board of Commissioners.

Sioux Falls, S. D.—Petition to pave Prairie ave. from Third st. to Twelfth st. with bitulithic paving or other bituminous paving, has been received and referred to Commissioner Hardimon.

Amarillo, Tex.—The Colorado-to-Gulf automobile highway has been finally assured.

Clarksville, Tex.—A second order passed by Red River County Commissioner's Court in connection with proposed good roads bond issue in Clarksville precinct has changed date of election from July 5 to July 12, when issue of \$200,000 40-year bonds will be submitted to people.

Galveston, Tex.—Bids now being advertised for by department of streets and public property for thousands of cubic yards of mudshell to be placed upon present shelled streets of city toward maintaining them and for shell which is to be used in surfacing Ave. K, from 39th to 32d sts., will have effect of placing shelled streets of city in better condition than they have been since they were established.

Galveston, Tex.—Sprinkling of paved streets of downtown business district is being discussed.

Houston, Tex.—Bond issue if \$15,000 for roads has been carried.

Moscow, Tex.—Citizens have voted for issuance of \$40,000 road improvement bonds.

Logan City, Utah.—Proposal to construct road along bank of canal on south side of Bear River Canyon, has been revived.

Salt Lake City, Utah.—A committee representing united commercial clubs of Salt Lake county have urged county commissioners to call bond election for voting bonds to improve highways of county.

Norfolk, Va.—Public improvement committee of city council has approved proposed extension of Olney road eastward through Smith's creek to Granby street. Ordinances providing for this public improvement carry an appropriation of \$50,000.

Norfolk, Va.—Permanent repairs to paving in Granby st., just south of Norfolk and Western Railway crossing will be made in few days.

Richmond, Va.—Resolutions have been adopted ordering paving with granolithic of east side of 36th st., from Broad st. to Government rd.; west side of Davis ave., from Kensington to Park ave.; south side of Park ave., from Davis to Robinson st., and the granite spall paving of alley between Davis and Robinson, Park and Kensington sts.

Aberdeen, Wash.—Resolution has been ordered for paving of East Heron, Kansas and East Wishkah sts., 13 blocks of 48-ft. roadway, and for concrete walks on Second st., from K to M, two blocks. Louis D. Kelsey, City Engr.

Aberdeen, Wash.—Ordinance has been passed for paving Second st., from K to M, two blocks, estimated cost \$4,800.

Seattle, Wash.—City Council has ordered improvement of large number of streets.

Spokane, Wash.—County Commissioners have advertised for bids for construction of Moran road, state highway, which will cost in neighborhood of \$50,000. Highway commission recently approved plans submitted by commissioners. Resolution for construction of highway, about seven miles of which will be built this summer, has been passed by the board.

Oneonta, Ala.—By Blount county commissioners to J. T. Pearson at \$4,000 to construct 1 1/4 miles of chert road on Oneonta-Cleveland highway.

Argenta, Ark.—For paving in Street Improvements Dists. 15 and 16 by Commissioners of the Districts to R. Mobley of Little Rock, at about \$145,000.

Bisbee, Ariz.—Bane & Tarrant of Lowell were lowest bidders for paving of Subway st., which will cost about \$6,000.

Tempe, Ariz.—Sprinkling contract, calling for sprinkling of specified streets at a set rate per annum has been let to George W. Nichols. Period included in contract extends from June, 1913, to June, 1914.

Oceanside, Cal.—For constructing 10-mile concrete road from Oceanside to Encinitas, to Jas. M. Montgomery Construction Co., of Alhambra.

Santa Monica, Cal.—For paving of 3 miles of Fremont ave., by City Council to Ira Hudson Co., of Los Angeles, at about \$140,000.

Bridgeport, Conn.—To Paul Svihra & Sons contract by Board of Contract and Supply for gutters and concrete sidewalks and curbs at Clinton Park. There were five bidders for work, Svihra & Sons being lowest. Their quotation was \$1.43 per lin. ft. for entire 150 ft. of work to be done. Next lowest bidder was J. J. Anderson & Co., whose price was \$1.59 per ft.

Hartford, Conn.—For constructing roads by Chas. J. Bennett, State Highway Commissioner, as follows: 5,530 lin. ft. of bituminous construction on the West Stafford road in Stafford to B. Silvestri & Co., of Hartford; \$1.64 sq. yd. for bituminous macadam, \$2.15 sq. yd. for telford, \$1 lin. ft. for rubble drain and 60 cts. sq. yd. for cobble gutters; 5,446 lin. ft. of concrete construction on the Hartford-Saybrook turnpike in Middletown to P. Arrigoni & Bno., of Middletown; \$1.63 sq. yd. for concrete and \$1.25 lin. ft. for rubble drain; 6,650 lin. ft. of hassamite pavement on N. and S. Colony sts., in Wallingford to the Connecticut Hassam Paving Co., of New Haven; \$1.50 sq. yd. for hassamite, \$1.40 sq. yd. for hassamite surface over a hassamite concrete base, 50 cts. cu. yd. for excavation; 5,586 lin. ft. trap rock macadam construction on Neck road in Old Lyme to Framingham Construction Co., of Framingham, Mass., at \$1.83 per lin. ft. for macadam, \$2.65 per lin. ft. for telford and \$1.25 per lin. ft. for rubble drain; 6,100 lin. ft. native stone macadam on Ellington road in Somers to A. D. Bridges & Son's Co., of Hazardville, at \$1.93 per lin. ft. for macadam, \$2.50 per lin. ft. for telford, \$1 lin. ft. for rubble drain, 50 cts. sq. yd. for cobble gutters; 7,610 lin. ft. of gravel road on the Somers road in Ellington to A. Vito Construction Co., of Thompson, at \$1.64 lin. ft. for gravel, \$2.64 lin. ft. for telford, \$1.25 lin. ft. for rubble drain, and 75 cts. sq. yd. for cobble gutters.

Jacksonville, Fla.—For construction of 26,141 sq. yds. dolarway pavement to J. G. Wilson of Jacksonville, Fla.

St. Augustine, Fla.—Contract for clearing and grubbing the 20-ft. road extending from Jupiter eastward just north of the lighthouse, crossing the canal and then continuing northward along the ocean front to connect with public road built by the Indian River association, has been awarded to J. H. Beckwith at \$90 per acre.

Atlanta, Ga.—For construction of 16,000 sq. yds. dolarway pavement to Jamison & Hollowell, of Atlanta, Ga.

Blomington, Ill.—For brick paving on Clay and Vale sts. and Mercer ave., to J. D. Laine, of Blomington, at \$1.97 per sq. yd. for cement fill and \$2.04 per sq. yd. for asphalt fill; total contract, \$57,000. Elmer Folsom is City Engr.

Kewanee, Ill.—For paving Prospect, Elliott sts. and McKinley ave., by Board of Local Improvements, to R. F. Conway Co., of Chicago, at \$34,035.

Rock Island, Ill.—For paving of Fourteenth st. with asphalt, by Board of Public Works, to McCarthy Improvement Co., of Davenport, Ia., at \$1.99½ per sq. yd.

Springfield, Ill.—For construction of 1,210 sq. yds. dolarway pavement to Dolarway Paving Co., of Illinois, Springfield, Ill.

Crawfordsville, Ind.—For road improvements as follows: Joseph Shafer road and Woody and Mote road to Lawrence Jenkins at \$10,425; Luther Booher road, in Franklin township, and John Pollett road, in Scott township, to Frank Warren, at \$16,050.

Indianapolis, Ind.—For furnishing 36,000 gals. road oil by County Commissioners to Standard Oil Co., at 4.95 cts. per gal.

Council Bluffs, Ia.—Bids for paving of Ninth and Tenth aves. for short distances and on Ave. E, from Seventh to Eighth sts., have been opened and contract given to E. A. Wickham as low bidder. He agreed to do work at \$2.10 a cu. yd., with 4 per cent. added for certificates. Herbert C. Gorden of Galesburg, Ill., offered to do work at \$2.15 a cu. yd. with 5 per cent. added for certificates.

Hawatha, Kan.—For construction of 16,000 sq. yds. dolarway pavement to Chapin Construction Co. of Kansas City, Mo.

Baltimore, Md.—Paving contracts aggregating many thousand dollars' worth of work to be done for paving commission and commission for opening streets have been opened by board of awards. P. Flanagan & Sons are apparently low bidders for only Annex contract to be put on block—No. 121. For paving commission contracts 58, 59, 60 and 61, the following concerns are, respectively, the

lowest bidders: The Standard Contracting Co. (58 and 59), the John Long Contracting Co. and P. Reddington. Commission for opening streets contract No. 120 has been awarded to Baltimore Asphalt Block & Tile Co., at its aggregate bid of \$26,497.75.

Bessemer, Mich.—Contract for building first section of four miles of county trunk road east of Watersmeet, to A. D. McRae, of Palatka, Iron county, by Road Commissioners, for \$12,320.

Tulepo, Miss.—By Second and Third districts of Lee county, contracts to J. W. Prescott of Guntown, M. Doris of Belden and F. D. Harvey & Co., of Tulepo, Miss., to grade and construct macadam roads.

Nevada, Mo.—For construction of 12,000 sq. yds. dolarway pavement to Chapin Construction Co., of Kansas City, Mo.

Bayonne, N. J.—By city council, for paving of West 4th street, to Uvalde Asphalt Co., 1 Broadway, New York City, at \$44,146.65.

Cranford, N. J.—Contract for macadamizing of Hamilton ave. has been awarded to the Weldon Contracting Co. by Township Committee. The Weldon company bid \$3,026.50. Other bids were as follows: Huntley & Bentley, \$3,331, and C. H. Winans Co., \$3,597.50. Six bids have been received for laying sidewalks in Elm st. and Lincoln ave. Contract was awarded to John Back, who offered to do work for 45 cts. per lin. ft. in Elm st. and 55 cts. per lin. ft. in Lincoln ave.

Jersey City, N. J.—Boulevard Commissioners has awarded contract for repaving of boulevard in North Bergen and Weehawken to Uvalde Asphalt Paving Co., for \$67,863. Only other bidder was the McFarland Co. The contract for the Bayonne section was awarded to William Van Keuren, whose bid was 95 per cent. of Engineer Dunham's estimate. Other bidders were M. A. Cutley, whose bid was 99 per cent., and the Clinton Contracting Co., whose bid was 106 per cent.

Newark, N. J.—Contracts for constructing walks in the grounds of new Normal and Training school have been tentatively awarded by building committee of board of education. Cost of work, according to proposals submitted, will be \$562. Two kinds of walks are to be laid. One north of the building connecting Broad street and Belleville avenue will be of cement, while an artistic brick walk will be built in sunken garden. Contract for first was awarded to Charles L. Pitts Co. (Inc.), whose proposal of \$157 was lowest received. Charles S. Cooper was awarded contract to construct brick walk at 15c. a sq. ft. In this case about 2,700 sq. ft. will be laid.

Passaic, N. J.—To Francisco Bros., contract for repairing Little Falls turnpike and Long Hill road with 4-in. macadam, their figure being lowest received.

Auburn, N. Y.—For paving Grand ave. with vitrified brick, by City Council, to David Tumpusky, of Binghamton, at \$7,464.

Utica, N. Y.—Contracts for resurfacing sections of various streets of city have been awarded at Board of Contract and Supply meeting. Contracts awarded were as follows: Fay st., from Court to Columbia st., bitulithic, natural stone curb, Harry W. Roberts & Co. Hart st., from Plant to Kirkland st., asphaltic concrete, artificial curb, John W. Davitt. Lincoln ave., from end of present pavement to the north line of Watson place, sheet asphalt, artificial curb, John W. Davitt. Elizabeth st., from the east curb line of Charlotte to the east curb line of John st., including the paving of ½ ft. added to the present roadway, bitulithic, natural stone curb, Harry W. Roberts & Co. Canal st., from Schuyler st. to the west line of Bryant st., bitulithic, natural stone curb, Harry W. Roberts & Co. Waverly pl., from Sunset ave. to Watson pl., bitulithic, artificial stone curb, Harry W. Roberts & Co.

Minot, N. D.—For paving with creosoted wood block Main and First sts., by Bd. City Comrs., to S. Birch & Sons' Constr. Co., of Fargo, at \$40,135.

Columbus, O.—By State Highway Commissioners for Sec. Nos. 1 & 2 Kenton-Finley road, to W. G. Mustard, of Ada, O., at following bids: for Sec. No. 1, \$1,785 and for Sec. No. 2, \$5,060.

Columbus, O.—By State Highway Commissioner, for grading and paving with waterbound macadam, the Richland Co., State Highway H, Pet. 657, Mansfield-Lexington road, Inter-County No. 334, in Madison, Washington & Troy townships; length, 23,094.5 ft. or 4.37 miles, to T. A. Gruber, Caledonia, O.; contract price, \$32,350.34; for grading and paving with

brick for heavy traffic, the Ashland Co., State Highway F, Pet. 339, Ashland-New London road, Inter-County No. 149, in Ruggles township; length, 13,265 ft., or 2.51 miles, to Lee, Griggs & Anderson, Millersburg, O.; contract price, \$36,000; for grading and paving with waterbound macadam, the Vinton Co., State Highway D, Pet. 417, Sec. No. 2, McArthur-Hamden road, Inter-County No. 396, in Clinton township; length, 14,701 ft., or 2.78 miles, to Roush & Woolum, Ironton, O.; contract price, \$14,899; for grading and paving with bituminous bonded macadam, the Lucas Co., State Highway E, Pet. 603, Central Ave. Extension road, Inter-County No. 21, in Richfield township; length, 5,922 ft., or 1.12 miles, to W. M. Gray, Bowling Green, O., contract price, \$12,300. James R. Marker, State Highway Commr.

Portland, Ore.—For paving Fourth st., by City Council, to Giebisch & Joplin, of Portland, at \$28,330.

Erle, Pa.—For repaving of 4th street from Sassafras to Walnut, to Mayer Bros. Construction Co. They were only bidders and agreed to lay asphalt at \$1.63 a yard, including the base.

Knoxville, Bow, Pa.—For construction of 1,200 sq. yds. dolarway pavement to Penn Dolorway Paving Co., of Pittsburgh, Pa.

Mt. Pleasant, Pa.—For construction of 6,500 sq. yds. dolarway pavement to Penn Dolorway Paving Co., of Pittsburgh, Pa.

Seranton, Pa.—County commissioners have met with County Controller C. P. Savage and awarded county road contract in three sections, two going to Gaynor Contracting Co. and other section to Raymond Construction Co. The Gaynor company will complete Sections Nos. 2 and 3 lying between city line on the north and Forest City and the Raymond Co. has the contract for completing the road between the Luzerne line at Duryea and the line of the 22d ward Raymond Co. got No. 1 section on its bid of \$1.61 a square yard, using asphalt material known as "Texaco." That company also bid to use either Bermudez or Trinidad asphalt, natural products, for \$1.80 a sq. yd., or to use another manufactured asphalt, "Aztec," for the same price as "Texaco," \$1.61 the sq. yd. Gaynor Contracting Co.'s bid for work on No. 2 section was \$1.59½ a sq. yd. for "Pioneer" asphalt, and for Section No. 3 its bid was \$1.75 a sq. yd., using "Pioneer" asphalt. The contract for these two sections was let on condition that the "Pioneer" material measures up to specification requirement, which is that asphalt must be of 96 per cent. purity. There was only one other bidder. This was Public Service Contracting Co. of Buffalo, whose offer was to build Section No. 2, using "Mexican Refined, Standard Oil Binder No. 3" material for \$1.74 a sq. yd.

Nashville, Tenn.—To Southern Roofing & Paving Co. contract to build sidewalk and curb on Second ave., south, between Broadway and Peabody st. Sam Rogers & Son were awarded contract to build sidewalk and curb on Seventh ave. north between Hume and Buchanan sts. The Adamant Stone Co. was awarded contract to construct sidewalk and curb on Scott st., between Delta and 11th aves.

Belton, Tex.—By Commissioners' Court for construction of good roads of Bell county, Precinct No. 1, to Witt-Fountain-Shaw Engineering Co., of Dallas.

Salt Lake City, Utah.—Tabulation of bids submitted on paving of State st. and Seventh East shows that P. J. Moran is low bidder on both contracts. Engineer will probably make report to City Commission recommending that contracts be let to Moran. Bids of various contractors were as follows: Seventh East, from Third South to Fifth South—Moran, \$42,136.06; Mellen, \$45,268.79; Clark, \$51,911.09; estimated cost, \$48,057.78. State st., from Ninth South to Tenth South—Moran, \$21,776.04; Mellen, \$24,808.99; Clarke, \$25,830.27; estimated cost, \$24,260.27.

Barre, Vt.—Contract to lay 1,700 lin. ft. of paving on streets has been awarded to Daniel O'Connell & Sons, of Holyoke, Mass., at \$22,906.

Centralia, Wash.—For paving of Maple st., by City Comm., to Alfred & James, of Centralia, at \$11,895.

Everett, Wash.—For paving and construction of walks on Walnut st., to F. K. Follitt at \$16,283, and for paving Lombard ave., to Atlas Const. Co. at \$61,050.

Monroe, Wash.—For 3,900 lin. ft. of paving, to H. Maloot, of Seattle, at \$19,299.

Puyallup, Wash.—For paving with bitulithic Fifth ave., to McKim & Addison, of Puyallup, at \$17,456.

Seattle, Wash.—By board of public works for paving Plum street to West Coast Construction Co. at \$34,386.71 and for grading East 55th street, to Russell & Gallagher, at \$13,578.

Sedro Woolley, Wash.—For 28,000 sq. yds. asphalt pavement and 600 sq. yds. Dolarway pavement, to Washington Paving Co., Savage-Scotfield Bldg., Tacoma, at \$49,000 and \$10,000 respectively.

Sedro Woolley, Wash.—For construction of 6,000 sq. yds. dolarway pavement to Washington Paving Co., Tacoma, Wash.

Vancouver, Wash.—For paving with gravel bitulithic, Thirteenth st., to Elwood Wiles, at \$28,594.

SEWERAGE

Tempe, Ariz.—Bonds will be issued for improvement of sewer system.

Tucson, Ariz.—Many thousands of dollars' worth of sewers will be laid in Tucson as result of ordinance passed by City Council authorizing issuance of sewer bonds running five years and bearing 6 per cent. interest, payable semi-annually. Sewers will be laid on Fourth ave., Seventh st. to Ninth; Ninth st. to Stevens to Third ave.; Hoff st., Ninth st. to Stevens, and Third ave., Ninth st. to Stevens.

Steger, Cal.—Plans have been submitted to City Council for construction of sanitary sewer system between Steger Junction and county line.

West Hartford, Conn.—It has been voted to authorize issue of sewer construction notes to amount of \$150,000, and notes for town uses to amount of \$200,000.

Wilmington, Del.—City Council has passed ordinance providing bond issue of \$150,000 for sewer and street improvements.

Dade City, Fla.—After much delay, city council in Dade City has disposed of and received money for city bonds for \$15,000. Money will be used to install storm sewers and hard surface number of streets.

Pensacola, Fla.—Commissioners have authorized City Engineer Rommell to build sanitary sewer on Baylen st., from Zarrogossa to Main. Sewer will be about 100 ft. long and will be built by city.

Bradley, Ill.—Board of Local Improvement is said to have voted for construction of sewer system; estimated cost, \$238,000.

Lafayette, La.—Lafayette and New Iberia are two of latest Louisiana cities which are preparing to establish new municipally-owned sewerage systems. Lafayette will spend \$100,000 on this project and has engaged engineer to prepare for work. New Iberia job will cost about \$75,000.

Fall River, Mass.—Appropriation of \$10,000 is being considered for construction of sewer in Birch st.

Tutwiler, Miss.—City will shortly own its sewerage system.

Manchester, N. H.—Orders have been passed to build sewers in Hall st., Howe st. to Shasta st.; Warner st., Mast st. northerly 950 ft., and petitions for new sewers have been referred to committee on sewers and drains as follows: Petition of Denis Morrisette for sewer in Davis st., Agawam to Victoria st.; Victoria st., Davis st. to the Merrimack river; petition of Thomas Chilcotte and others for a sewer in Shasta st., Lincoln st. easterly.

Jersey City, N. J.—Notice is given that Board of Street and Water Commissioners have declared necessity of enlarging and constructing 72-in. circular brick sewer in Mill Creek, from southerly line of Grand st. to Montgomery st.; a 60-in. circular brick sewer in Mill Creek and Merseles st., from Montgomery st. to Wayne st.; a 42-in. circular brick sewer in Montgomery st., from Mill Creek to Cornelison ave.; also a 24-in. circular brick sewer in Fremont st. and Factory st., from Mercer st. to Montgomery st. E. B. See, Clerk.

Linden, N. J.—At semi-monthly meeting of Linden Township Committee, sewer committee recommended that lateral sewer be constructed in Mitchell ave. and in Stimson st., 50 ft. of lateral in the former street and 250 ft. in the latter. Committee moved to adopt plan and will start operations immediately.

Linden, N. J.—Ordinance has been adopted providing for construction of lateral or connecting sewer in Hussa st. Frank R. Anderson is Township Clerk.

Montclair, N. J.—Town Council has decided to join with Orange in con-

struction of Imhoff system of sewers and to build laterals and joint sewers.

Roselle Park, N. J.—Borough Engineer Luster has presented plans for proposed storm sewer to be constructed in Grand ave. Cost if built to Galloping Hill road will be \$13,719. If extended to Hemlock st. it will be \$15,399, and if it is constructed to Dalton st., cost will be \$16,417.

Binghamton, N. Y.—Resolutions have been adopted for construction of sewers in various streets. F. M. Hopkins is City Clerk.

Binghamton, N. Y.—It is probable that next proposition taxpayers will be called upon to consider will be issuing of bonds for erection of sewage disposal plant.

Binghamton, N. Y.—Ordinance will be introduced declaring intention of Council to construct sewer on Park st. and several ordinances authorizing construction of sewers on which Council at its last meeting declared intention to construct will be introduced.

Waterloo, N. Y.—Village Board of Trustees has adopted resolution directing execution of \$100,000 worth of sewer bonds to Harris-Forbes & Co., of New York, the successful bidders.

Raleigh, N. C.—Included in budget is appropriation of \$5,000 for extension of sewer pipes.

Mt. Vernon, O.—R. W. Pratt, of Cleveland, will prepare plans for \$40,000 sewage disposal plant.

Chester, Pa.—Common council has passed Bill No. 18, an ordinance providing for construction of a sewer on 21st street, commencing at a point 300 ft. east of Madison street, thence running westwardly to connect with Madison street sewer.

Hazleton, Pa.—To provide proper sewerage systems for Twelfth, Thirteenth and Fourteenth wards, and to accomplish any appreciable amount of street paving will require bond issue of \$350,000. Sewer system for northwestern outlet will require \$125,000 and second system for Thirteenth and Fourteenth wards a similar amount.

Oil City, Pa.—Construction of sewer system on Union st. is being discussed.

Seranton, Pa.—Proposition of municipal bond issue for \$300,000 will be taken up by council. Largest amounts, if bond issue goes through, will go to build relief sewer on Phelps street, to costs \$79,500, and one on Linden street, \$78,500. These sewers will be largest in city, planned to carry off surface drainage and to prevent frequent flooding of streets and cellars.

Sioux Falls, S. D.—Resolutions have been adopted to construct lateral sewer on Seventh ave., between Fifteenth and Twenty-first sts.; on Twenty-first st., from Fourth ave. to Seventh ave., and on Seventh ave., from Fifteenth st. to Twenty-first st.

Nashville, Tenn.—Bill has been introduced appropriating \$16,000 for construction of brick trunk sewer to be known as the Belmont Heights trunk sewer.

Nashville, Tenn.—Two bills which passed third and final reading are as follows: Appropriating \$2,600 out of sewer department for construction of sewer in alley No. 728, between Ordway and Calvin aves.; appropriating \$1,200 out of the special sewer department to extend the Ament st. trunk sewer.

Nashville, Tenn.—Bill has been passed appropriating \$1,250 to construct sewer in Alley No. 297; appropriating \$16,000 out of special sewer department to construct brick trunk sewer to be known as Belmont Heights trunk sewer; appropriating \$2,000 out of sewer department to construct a sewer through private property and alley No. 201, between Third and Fourth aves., north.

Houston, Tex.—Bond issue of \$140,000 for drainage in Drainage District No. 7 has been carried.

Temple, Tex.—City Council has rejected offer of 97 cts. made by bidder for \$75,000 issue of municipal 5 per cent. bonds recently voted for purchase of plant of the Temple Sanitary Sewer Co., and enlargement and extension of same. Issue will be readvertised and new bids opened July 8.

Aberdeen, Wash.—City Engineer has been instructed to make survey, plans and estimates for proposed sewer system for South Aberdeen. This area covers approximately 1,000 acres. Louis D. Kelsey is City Engr.

Spokane, Wash.—Plans and specifications for big down town intercepting sewer, proposed for several years, at cost of over \$200,000, but never put through, will be adopted by City Council at once, for purpose of bringing matter to an issue.

Horicon, Wis.—Plans are said to be prepared for construction of 6 miles of sewers, to cost about \$30,000.

Point Grey, B. C.—City Engineer has completed plans for \$300,000 sewer system.

CONTRACTS AWARDED.

Springfield, Ill.—To H. Nelch & Sons contract for laying large sewer in First st., from Allen to Scarritt sts.

Baltimore, Md.—Board of awards has approved recommendation of sewerage commission that storm water sewerage contract No. 29 be awarded Guild & Co., of Chattanooga, Tenn., which is making its debut in local contracting field. Bid of that concern for contract was \$83,738.10. Sanitary sewerage contract No. 116 has been awarded to Gallagher, Boyle & Bryan at their bid of \$190,001.80.

Saline, Mich.—For construction of sewers to Vander Weele Bros., Grand Rapids, \$17,517. Other bids as follows: Emanuel L. Schneider, Ann Arbor, \$19,552; Edwards & Whaley, Milan, \$18,214; Weage & Tyler, Coldwater, \$18,434.

Madison, Mo.—Board of local improvements of Madison has accepted bid of Edward W. Hilker for proposed sewer system. Estimated cost is \$387,000. Ground will be broken August 1. The work is to be finished in a year. The sewer will be 1 foot in diameter at its smallest part and 7 feet in diameter at its outlet. There will be about seven miles of sewer.

St. Louis, Mo.—By city, to William F. Riley of St. Louis at \$144,284 to construct sewers in Rock Creek sewer district No. 2.

Perth Amboy, N. J.—To P. J. Monaghan contract for constructing 12-in. sewer in Brace ave. He offered to put down pipe for \$1.19 a lin. ft., and construct manholes at \$33.50 each.

Secaucus, N. J.—For construction of sewer and drainage system for Clarendon section to Chas. O'Neill, at \$24,900. R. T. Churchill is Mayor.

Brooklyn, N. Y.—Bids have been opened for 16 sewer contracts in Queens, lowest on each aggregating \$42,961.84. There were 70 bids in all, average of over four on each. Horn & Bessilvere, a new firm of Jersey City and Freeport, were in the lead, capturing the following: East side of Jackson ave., Long Island City, from South Washington pl. to Skillman pl. \$1,376.02; 6-in. house connections in Webster ave., Long Island City, from Vernan ave. to William st., \$1,470.50; outlet sewer in Oceanus ave. Rockaway Beach, from a point about 450 ft. north of the Boulevard, \$1,275; receiving basin, northerly corner Woodward ave. and Silver st., Ridgewood, \$197.50, and in Myrtle ave., at the northeast corner of Fedick ave., at Lafayette ave. and Tompkins pl., Ridgewood, \$635; storm water sewer in Queens ave., Flushing, from 17th st. to Parhons ave., and a combined sewer in Central ave., from Queens ave. to Beach st.; Beach st., from Central ave. to Wilson; Cypress ave., from Central to crown, 335 ft. east of same; Franconia ave., from Central to the crown, 210 ft. east of same; Hawthorne st., from Central ave. to the crown, 360 ft. east of same, and in Hollywood pl., from Central ave. to the crown, 260 ft. east of same, \$13,819.65. Clancy & Van Alst were successful bidders on following three jobs: Sewer in Potter ave., Long Island City, from Lawrence st. to Second ave., \$649.40; 6-in. pipes for house connections, Woolsey ave., Long Island City, from Steinway ave. to Second, \$1,337.50; sewer in 16th st., Flushing, from Franconia ave. to Cypress ave., and in Cypress ave., from 16th st. to Murray, and in Delaware st., from 16th to Murray, \$3,902.82. Peace Bros. were successful bidders for sewer in 17th st., from Cypress ave. to Sanford ave., Flushing, \$1,583.60; receiving basins southerly side of Borden ave., Long Island City, opposite Hayward and Oliver sts.; Van Alst ave. and West st., north and south side of Borden ave., and at Long Island Railroad crossings, \$1,410. Joseph Di Benedetto, bid lowest on sewer in Forest ave., Ridgewood, from Putnam ave. and in Putnam ave., from Forest to Buchman, \$4,526.80; combined sewer in Parson ave., Flushing, from Queens ave. to Oak st., \$11,113.75. George Marshall was lowest bidder on receiving basins on Liberty ave., Ozone Park, at the northeast and southeast corners of Stoothoff ave. and south corners of Hamilton ave., Walnut st. and Briggs ave., \$966.50, and northeast corner Hamilton ave. and Myrtle ave., \$160. Henry J. Mullen's low bid on constructing a sewer in 16th st., from Queens ave. to Hawthorne st., Flushing, and in Hollywood pl., from 16th st. to the corner, 260 ft. east of Central ave., \$2,550.80.

Watervliet, N. Y.—By Storm Sewer Comn. for completion of one earth filled dam, and one concrete dam across Dry River, together with overflow and outlet works, concrete and brick conduits and storm drains, to Leary & Morrison, of Fairport; cost, about \$100,000. Solomon, Norcross & Keis are Engrs., Atlanta, Ga., and Watervliet, N. Y.

Eugene, Ore.—To Appewhite & Sterns contract for construction of sewer on 15th ave., east, between Kincaid and Alder.

Danville, Pa.—By Council, contract for settling basin, new pumping machinery and connections to pump station of city water works, to Pitt Construction Co., of Pittsburgh, Pa.

Indiana, Pa.—For constructing 7,730 ft. 8 and 6-in. pipe with 11 manholes, by Borough Council, to John Kuhn, of Greensburg, at \$6,267. Thos. Pealer is Boro. Engr.

Reading, Pa.—For constructing the N. Sixth st. branch of storm sewer, by Bd. of Pub. Wks., to Fehr & O'Rourke, at about \$71,853.

Huron, S. D.—To Bauman Bros. for construction of lateral sewer upon Ohio st. in district No. 27 at \$704.35.

Nashville, Tenn.—To John Broderick contract for \$999 to lay sewer in alley and private property between 28th and 29th aves., at south side of Lemira ave., north to near Parthenon ave.

Dallas, Tex.—Contract for 6-in. sanitary sewer in Hubert between San Jacinto, and in Ross and Lewis to Greenville road has been awarded to C. W. Olcott on his bid of \$515, with 15 cts. a foot for rock trench and \$12 for manholes.

Salt Lake City, Utah.—P. J. Moran was lowest bidder for construction of Fifth East sewer. Bids as follows: Moran, \$48,538.71; Clark, \$48,940.87; Gilkerson Construction Co., \$51,813.92; Heuser & Sim, \$83,783.71; estimated cost, \$52,865.74.

Bellows Falls, Vt.—For constructing sewers, from plans of E. A. W. Ham-matt, 15 Water st., Newton Centre, Mass., to Baldassarro & Robinson, of Bellows Falls, at \$13,638. Edmund C. Bolles is Village Clk.

Orleans, Vt.—For laying 24,000 ft. 6, 8 and 10-in. c-l. water pipe and for constructing concrete dam, intake and gate house at outlet of Willoughby Lake, in Brownington, Vt., for the Orleans Water Works Co., to the H. P. Cummings Co., of Ware, Mass.

Seattle, Wash.—For construction of sewers on Ashwood avenue, to N. F. Arto Bros. & Sanro, at \$5,368.35.

WATER SUPPLY

Phoenix, Ariz.—Mass meeting has been called to discuss municipal water-works proposition and date was set for Friday, June 20th at board of trade building, Glendale.

Tempe, Ariz.—Order for duplicate of present pump which is used to supply town with water, a three plunger triplex, is to be placed with manufacturers at early date. New pump will be installed in pit with old one and worked alternately.

Tucson, Ariz.—Property owners of west Congress st. are petitioning for laying of water mains.

Riverside, Cal.—Sum of \$75,000 will be expended by Riverside Water Co. on improvement of canals and extension of system.

Ventura, Cal.—To Wardell & Wagner, 318 E. Seventeenth st., Los Angeles, contract at \$11,000 for constructing 1,000,000-gal. reservoir and distributing system of cement pipe on Tapo Ranch, Ventura County. Engineer is F. G. Des-sery, Central Bldg., Los Angeles.

Denver, Colo.—Steps are being taken to secure municipal water plant.

Jacksonville, Fla.—Better water power is being planned for city.

Royston, Ga.—Citizens have voted \$45,000 bond issue for construction of municipal water works and sewer system.

Indianapolis, Ind.—Order has been given Indianapolis Water Co. by board of public works to lay water mains in Oxford st., from Michigan to North sts.; Dearborn st., from 19th to 21st st.; 19th st., from Dearborn st. to Parker ave.; Parker ave., from 16th to 19th st., and Oakland ave., from Michigan to North st.

Indianapolis, Ind.—At request of company board of public works has ordered Indianapolis Water Co. to lay 12-inch water main in Dearborn st., from Big Four railway tracks to 16th st., thence in 16th st. to Parker ave. New main will connect with other large mains already in service.

Rockport, Mass.—Extension of water main on Pigeon Hill street is being discussed.

Tutwiler, Miss.—City will shortly own its waterworks system.

Boulder, Mont.—City Council will shortly engage an engineer to prepare plans for water works.

Greenville, N. H.—Dudley & Sawyer of Manchester will be consulting engineers for construction of municipal water works. Fred. W. Ely is Chm. Water Com.

Moorestown, N. J.—Township Committee, of Moorestown has found it necessary to postpone special election for purpose of authorizing selling of bonds amounting to \$140,000, which would be used for purchase of water system from Moorestown Water Co.

Paterson, N. J.—Construction of storm water drain for Main street from Smith street to Passaic river is being planned.

Paterson, N. J.—The National Board of Fire Underwriters has made following recommendations: Early construction of new distributing reservoir at elevation of 300 feet with minimum capacity of 20,000,000 gallons. Water distribution system be strengthened with new mains having capacities of 10,000 gallons per minute in congested districts, 3,000 to 6,000 gallons per minute in minor mercantile districts and 1,500 to 4,000 gallons per minute in residential districts.

Totowa, N. J.—Installation of water system has been authorized. In construction of proposed distribution plant it is estimated that more than 13 miles of pipe will be laid. Cast iron pipe will be used throughout system, and will consist of pipes ranging from 8 to 12 ins. in diameter. It is estimated that aggregate cost of installing distribution plant will be in vicinity of \$55,000.

Arcade, N. Y.—George N. Cowan has secured franchises to put in gravity water system in Varysburg and North Java. Work will be commenced on July 1st.

Ithaca, N. Y.—Water Committee of Board of Public Works has been authorized to obtain plans for installation of two new hydraulic turbines at Vanetta pumping station. Two turbines were purchased some time ago, but were rejected by board. Committee will at once acquire two new turbines, to be installed as soon as possible. Matter of extending the water mains in number of city streets has been referred to Water Committee with power to act on bids submitted.

New Rockford, N. D.—F. S. Crabbe, of Fargo, will prepare plans for construction of water works.

Akron, O.—Bids will be received at the office of the Auditor of the city of Akron, O. until 12, noon, July 18, 1913, for purchase of bonds of said city in aggregate sum of \$1,250,000, issued for purpose of extending and enlarging water works. James McCausland, City Auditor.

Mount Pleasant, S. C.—A \$20,000 waterworks system for Mount Pleasant is soon to be voted for.

Nashville, Tenn.—Bill appropriating \$105,000 out of special reservoir emergency fund for purpose of repairing and restoring east basin of city reservoir, has been introduced by city council.

Nashville, Tenn.—Bill has been passed appropriating \$105,000 out of special reservoir emergency fund to repair and restore east basin of city reservoir.

Castle Dale, Utah.—Citizens are said to have voted \$14,000 bond issue for construction of municipal water works.

Tacoma, Wash.—City Council has passed formal ordinance placing watershed of Green river gravity system under jurisdiction of Mayor W. W. Seymour.

CONTRACTS AWARDED.

Hartford, Conn.—Bids have been opened for construction of eight miles of pipe line. Contract No. 4, between Talcott mountain and Phelps brook. Lowest bidder was the Beaver Engineering & Contracting Co. of New York as follows: Riveted steel pipe, ¾-in. plate, 5,400 lin. ft., \$9; riveted steel pipe, 5-16-in. plate, 33,900 lin. ft., \$8.30; lock-bar or welded steel pipe, 5-16-in. plate, 33,300 lin. ft., \$9.10; steel pipe at two crossings of the Farmington river, 550 lin. ft., \$10.20; lining steel pipe with mortar, 550 lin. ft., \$1.70; laying 42-in. cast iron pipe, 39,850 lin. ft., \$3.97; laying 12-in. and smaller cast iron pipe, 500 lin. ft., \$2.30; rock excavation, 4,000 cu. yds., \$2.90; special earth excavation, 500 cu. yds., \$1.70; concrete masonry: (a) for steel pipe, 700 cu. yds., \$8.05; (b) for

cast iron pipe, 100 cu. yds., \$20.70; brick and concrete masonry: (a) for steel pipe, 170 cu. yds., (b) for cast iron pipe, 100 cu. yds., no price given; riprap, paving and dry rubble walls, 250 cu. yds., \$2.30; miscellaneous cast iron, wrought iron and steel: (a) for steel pipe, 15,000 lbs., 10c.; (b) for cast iron pipe, 5,000 lbs., no price stated; special work at crossing of Farmington river near station 30, \$7,000; special work at crossing of Farmington river at station 360, \$7,000; special work at two railroad crossings, \$1,000; solid lead joints in cast iron pipe, 50 lbs., \$4.50.

Cambridge, Ill.—For constructing artesian well and pumping plant, from plans of Arthur M. Morgan, Engr., 111 W. Monroe st., Chicago, to J. P. Miller Well Co., of Chicago, at \$2.95 per ft.

Kansas City, Mo.—To Badger Meter Mfg. Co. of Milwaukee, Wis., for 2,000 ¾-in. meters.

Hildreth, Neb.—By city, to Keystone Driller Co., Monadnock Blk., Chicago, for Dornie deep well pumping machinery.

East Orange, N. J.—One bid has been received for installing a centrifugal pump at White Oak Ridge, from Henry R. Worthington Pump Works. Contract was awarded to that concern at \$400.

Newburgh, N. Y.—Bids on piece of water main extension work on Newburgh avenue, for 165 ft. have been opened by Fishkill Landing trustees. Michael R. Spino was given contract. His bid was \$225, against that of Thos. J. Martin for \$284.09.

Geneva, O.—For constructing concrete dam, 325 ft. long and 8 ft. high with end walls, to B. F. Hewitt, of Jefferson, at \$14,960.

Billard, Wash.—To Jas. Kennedy Constr. Co., of Fargo, N. D., at \$30,973, for constructing mains and water tank, etc.

Puyallup, Wash.—To Crane & Co., Tacoma, for furnishing cast-iron water pipe for water system, at \$7,579, and for laying mains, to McKim, Kline & Addison, at \$9,920.

Watertown, Wis.—By Board of Water Commissioners following bids were received for laying 2,200 ft. of additional water main this season: O. Biefeld & Co., \$1.26 pe lin. ft., complete; extra special castings, \$44; Lehmann Bros., \$1.27 per lin. ft., complete; extra special castings, \$38. O. Biefeld & Co., being lowest bidders, contract was awarded to them.

LIGHTING AND POWER

Palo Alto, Cal.—City council has authorized purchase of Diesel engine and electric generator for municipal light and water plant at cost of about \$27,000, bonds for which were recently voted, amounting to \$19,000.

Newberry, Fla.—Purchase of material and machinery for new municipal electric light system and water works will be made immediately, to include one 80-hp. high-pressure boiler, one 50-kw. generator with switchboard, exciter and street-lamp regulator, generator to be connected to 100-hp. high-speed automatic engine; street lamp equipment of 51 100-watt tungstens and five 250-watt tungstens, five 1-kw., eight 1½-kw., three 2-kw., one 3-kw., and one 7½-kw. transformers, poles and pole line material for 4 miles. Plant will be built by J. B. McCrary Co., Third National Bank Bldg., Atlanta, Ga.

Morrison, Ill.—City council has passed resolution granting franchise to Rock River Light & Power Co. The franchise is for 25 years.

Monona, Ia.—F. L. Wellman & Son are said to have secured franchises for electric light plant.

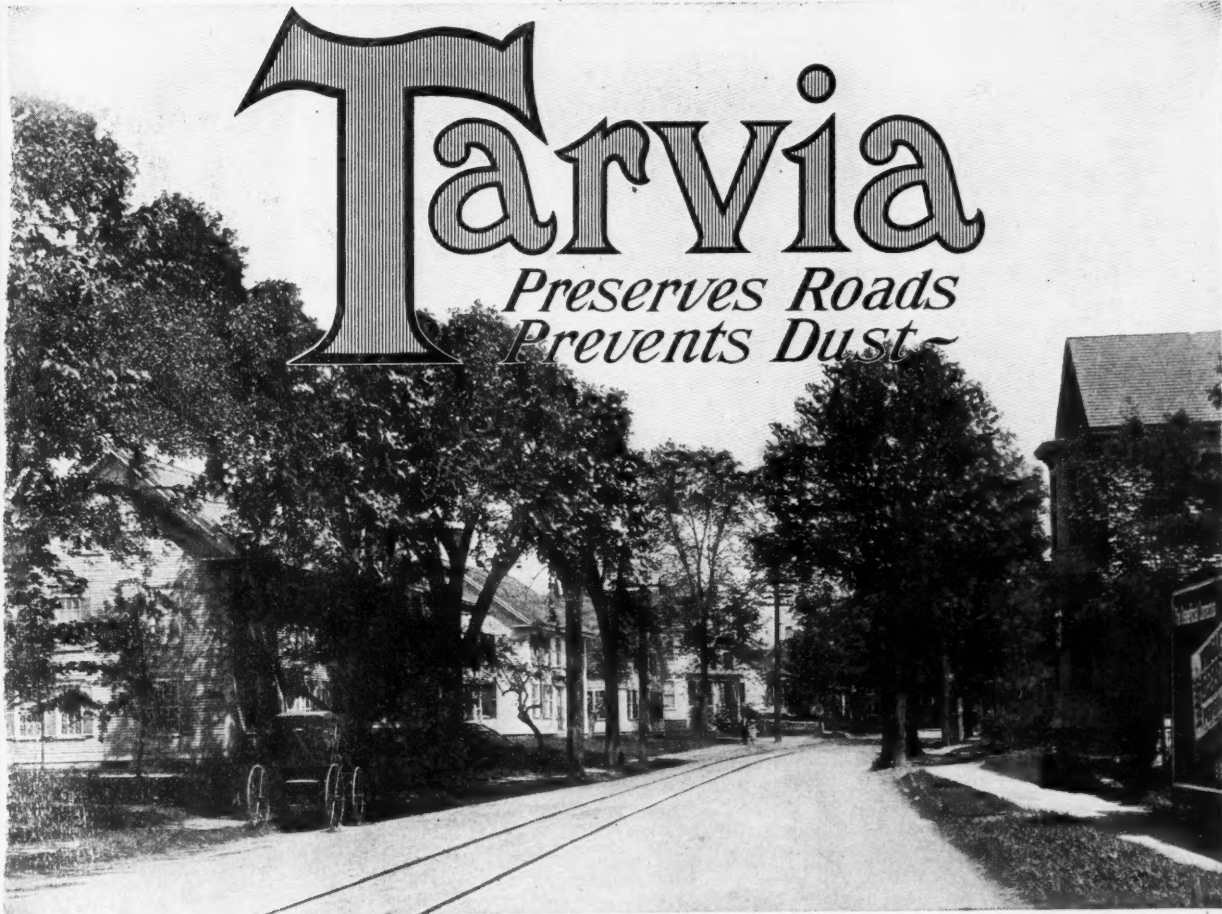
Breaux Bridge, La.—City Council will spend about \$60,000 in improvements, including electric lights, paving and other improvements.

Taunton, Mass.—A communication from manager of municipal lighting plant favoring \$50,000 appropriation for installation of new turbo-generator at plant to meet requirements of recent business increase, has been referred to committee on finance.

Crookston, Minn.—Bonds in sum of \$30,000 will be issued for purpose of erecting electric light plant and water system.

Windom, Minn.—Citizens have voted \$15,000 bonds for day service.

Camden, N. J.—Council's special committee in charge of negotiations for erection of municipal electric lighting plant has opened five bids for work, lowest being \$413,900. This was made by Atlantic Construction & Supply Co., of



Union Avenue, Laconia, N. H. Built and maintained with "Tarvia X."

Tarvia in Laconia

THE economy of tarviated pavements has been demonstrated very clearly in hundreds of cases and is clearly stated by Mr. Chas. A. French, City Engineer, of Laconia, N. H., as follows in the Laconia Democrat of August 16, 1912.

"We have been building and maintaining bituminous macadam roads in this city since the early summer of 1908, and have at present over 50,000 square yards of this kind of pavement, which has cost to construct about 75 cents per square yard for a six-inch surface bound and sealed with Tarvia, and the above price includes removing the old surface of the street and preparing the sub-grade for the new surface.

"Careful account of the cost of maintenance has been kept, and has been found to be from one to two cents per square yard per year, and the street surfaces are in as good if not better condition today than they were at the time they were laid.

"The average width of the hardened surface of state roads is fifteen feet, and a mile in length would contain 8,800 square yards of surface. Calling the cost of re-surfacing the trunk lines with bituminous macadam as 80 cents per square yard, which is much

in excess of the cost of similar work here in Laconia, we have a cost of \$7,240 per mile of road.

"Calling the yearly cost of maintenance of this type of road 2 cents per square yard, which is also in excess of the cost in Laconia, we have a yearly cost of \$175 per mile against \$500 per mile assumed by the State Superintendent of Highways.

"Surface treatments with oils or tars cost, as is stated by the Superintendent, from \$400 to \$500 per mile per year, but we have demonstrated in Laconia that a road, when properly built and bound with 'Tarvia X', can be treated or maintained for a sum less than \$176 per mile, which is a great deal less than \$500 per mile."

This is only one of many calculations justifying our statement that it is cheaper in the end to build automobile-proof roads with Tarvia than to build ordinary macadam and use a dust preventive.

BOOKLET ON REQUEST.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Kansas City Cleveland
Cincinnati Minneapolis Pittsburgh Seattle Corey, Ala.



THE PATTERSON MFG. CO., Ltd.:—Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S., Sydney, N. S.

Atlantic City, and provided for overhead system. Bid of \$65,400 has been made by same company for laying of underground conduits of wires in main streets. Camden authorities had estimated cost of plant at \$500,000.

Grand Forks, N. D.—Municipal electric light plant will be greatly improved by new machinery to cost about \$13,000.

Okemah, Okla.—City will purchase shortly 150-hp. engine directly connected to a 120-kw., 3-phase, 60-cycle, 2,300-volt generator, with a 15-kw. exciter, and switchboard for above generator, to panel with 60-kw. generator, voltage regulator and recording wattmeter. F. M. Peyton is Supt.

Chambersburg, Pa.—Specifications for remodeling of electric light plant have been taken up, discussed, and acted upon. Bids will be asked of 17 electric companies.

Newport News, Va.—Changes in street lighting system have been recommended.

Charleston, W. Va.—Application has been made to public service commission by Fairmont and Clarksburg Power Co., for permission to construct two dams for power purposes in Taylor and Marion counties. One dam is to be located at Valley Falls, on Tygart Valley river, fourteen miles east of Fairmont, and other one on Pleasants Creek in Taylor county.

CONTRACTS AWARDED.

Los Angeles, Cal.—Board of public works has recommended to city council that board be authorized to advertise for bids for street lighting for period of two years.

Oxnard, Cal.—By City Council, contracts for construction of municipal water plant to C. D. Vincent and H. N. Tracy Co., Oxnard.

Sarasota, Fla.—The Erie Iron Works, of Erie, Pa., was successful bidder for 200 horse-power engine to be installed by Sarasota Ice & Electric Co. Western Electric Co. has secured contract for dynamo.

Evanston, Ill.—For purification plant for city to Macdonald Engr. Co., 53 W. Jackson Blvd., Chicago. Approximate cost, \$200,000.

Davenport, Ia.—By People's Light Co., to Stacey Mfg. Co., of Cincinnati, O., for gas holder of 1,000,000 cu. ft. capacity, at about \$100,000.

Cut Bank, Mont.—To Two Miracle Concrete Corporation for construction of water and light plant at \$41,000.

Rochester, N. Y.—By State Board of Control, at St. Paul, as follows: To American Eng. Co., for stokers, at \$12,900, and Cahill Boiler Co., for boilers, \$12,525.

Klamath Falls, Ore.—Question of municipal ownership of lighting system is being discussed.

Corsicana, Tex.—Mayor and city secretary have been authorized to enter into contract with Corsicana Gas and Electric Light Company for period of two years.

Wauzeka, Wis.—By village, contracts for construction of waterworks, as follows: Standpipe and laying of mains, to J. Roherty, Madison, Wis.; piping, to U. S. Cast Iron Pipe & Foundry Co., 122 S. Michigan av., Chicago, Ill. Wm. G. Kirchoffer is Engr., 221 N. Carroll st., Madison.

FIRE EQUIPMENT

Sacramento, Cal.—Bids will probably be readjusted for furnishing alarm boxes and 4 indicators.

Jacksonville, Fla.—If plans of fire committee of city council materialize, Jacksonville's fire department in few months will be equipped with high-power fire boat for duty in guarding city's valuable waterfront property from fires and conflagration. It is estimated that it will take at least \$90,000 to build and equip such a vessel.

Centralia, Ill.—Purchase of additional hose has been recommended by Fire Committee.

Cuba, Ill.—On June 21 taxpayers will vote on question of better fire protection.

Cliffondale, Mass.—Purchase of auto-pump engine is being urged.

Saugus, Mass.—Purchase of motor pumping engine is being considered.

Ashbury Park, N. J.—Purchase of number of alarm boxes is recommended by Chief W. H. McNutt.

Fair Haven, N. J.—Erection of new firehouse is being planned; estimated cost, \$11,000.

Jersey City, N. J.—Bids for 2,000 ft. of new fire hose will be received shortly.

New Brunswick, N. J.—Motor apparatus will shortly be purchased. Henry Seiffert is Chairman of Fire Committee.

Paulsboro, N. J.—Paulsboro firemen have appointed committee to procure automobile fire apparatus.

Wildwood, N. J.—Bids for apparatus to equip big new house of Holly Beach Fire Company have been called for by Wildwood Commissioners.

Onelda, N. Y.—Purchase of 55-ft. hook and ladder truck, 1,800 ft. of hose, alarm system and other equipment has been provided for by appropriation of \$7,000.

Saratoga Springs, N. Y.—Appropriation of \$10,500 has been voted for new fire equipment. E. S. Shadwick is Chief.

Chester, O.—Purchase of combination chemical hose and ladder truck has been recommended.

Chester, Pa.—Common council has passed bill No. 22, an ordinance providing for purchase of two steam fire engines and one hook and ladder truck for fire department, and for repairing of the La France steam fire engine belonging to city now in custody of Franklin Fire Co.

Media, Pa.—The Media Fire Company is planning to purchase automobile combination wagon.

York Haven, Pa.—Ordinance authorizing loan of \$2,500 for purchase of fire apparatus and erection of fire house has been passed finally. Bonds will be issued July 1. Fire engine will be purchased at meeting of Council to be held July 7.

Clarksville, Tenn.—Committee has been appointed to consider question of purchasing motor apparatus.

Dallas, Tex.—Purchase of two new automobile combination chemical and hose wagons has been authorized. Bids will be asked for immediately.

Port Arthur, Tex.—Purchase of combination chemical automobile engine is being considered; estimated cost, \$7,000 to \$8,000.

Wheeling, W. Va.—Motor apparatus may possibly be purchased. E. T. Rose is Chief.

Weatherford, Tex.—A sixty-horse power, thirty-five miles an hour speed capacity, solid tire auto chemical engine and hose reel combined will be purchased for fire company at expenditure of \$3,500.

CONTRACT AWARDED.

Atlanta, Ga.—City board of firemasters has finally reached conclusion as to purchase of fire hose. They bought 1,000 ft. of Paragon brand at \$1.10 per ft. from the Eureka Fire Hose Manufacturing Co.; 500 ft. of Economy brand at 90c. per ft. from the Manhattan Fire Hose Mfg. Co., and 500 ft. of White King brand at 80c. per ft. from the B. F. Goodrich Tire & Rubber Co., through this company's Atlanta agents, the Cotton States Belting and Supply Co.

Geneva, Ill.—To Peter Pirsch Co., of Kenosha, Wis., for one combination chemical and hose wagon at \$552, and to the Chicago Fire Hose Co., for hose, at 72 cts. per ft.

Des Moines, Ia.—For furnishing motor apparatus contracts have been awarded as follows: Seagrave Co., of Columbus, O., for two combination chemical and hose wagons at \$5,683 each; American-La France Fire Engine Co., Elmira, N. Y., one tractor for aerial truck, \$5,200, and one city service truck, \$6,200.

Peabody, Mass.—Board of fire engineers of Peabody has voted to buy motor driven combination chemical wagon for fire department. An order has been placed with Seagrave Co., of Columbus, O. Price will be \$5,940. The board has also voted to buy Knox tractor for ladder truck. It will be three-wheeler and cost \$3,250.

York, Pa.—By Eagle Hose & Chemical Co., No. 7 contract for building combination hose and chemical auto-driven truck, to Martin Carriage Co., at \$6,000.

Harrisville, R. I.—By committee to Loper Fire Alarm Co., for new fire alarm system.

El Paso, Tex.—The contract for 3,000 feet of fire hose, approximating \$3,000, has been approved by Mayor C. E. Kelly and Alderman J. I. Hewitt, chairman of the fire committee, and recommendation that hose be purchased will be made at session of city council. Contract was divided equally among three companies. R. W. Joyner, of Dallas, Tex., representing the Eureka Hose Co., of New York, received contract for 1,000 feet; Sam Blumenthal and Frank Griffith, representing Fabric Hose Co., of New York,

a like amount, and Laurie Hardware Co., representing the Bi-Lateral Co., of Jersey City, N. J., the same.

Fort Worth, Tex.—To Eureka Fire Hose Co., contract for furnishing this city with 5,000 ft. of hose, at \$1.20 per foot.

Witchita Falls, Tex.—To Fabric Fire Hose Co., of New York City, for 1,000 ft. of their Wax and Para gum treated hose, at \$1.10 per foot.

BRIDGES

Washington, D. C.—Calvert st bridge, spanning Rock Creek, may be replaced by new structure at early date.

Council Bluffs, Ia.—Resolution of necessity for construction of 120-foot steel span bridge across Nishnabotna on edge of town of Carson has been passed by board of supervisors. Estimated cost of structure is \$5,000. Supervisors have also passed three other bridge resolutions. One provides for construction of small bridge in Keg Creek township, and two provide for bridges in Silver Creek township. Cost will be small, estimates fixing cost of three structures at \$120, \$340 and \$400.

Boston, Mass.—Bids will be received for construction of temporary draw bridge to replace present Chelsea south bridge; estimated cost, \$90,000.

New Brunswick, N. J.—Bids have been received by board of freeholders for erection of bridge across Herds Creek in Woodbridge township. No contract was awarded. Following were bids received: C. M. Meeker, \$1,167; J. C. Fowler, \$1,261; C. B. Carman, \$1,194; J. M. Appleby, \$1,395; W. S. Conover, \$1,296.40; Schneider & Steale, \$1,540; and W. G. Quackenbush, \$790.

Newark, N. J.—Recommendations for construction of bascule or "jack-knife" type of bridge over Passaic river at Belleville are being considered by joint bridge committees of freeholders of Essex, Hudson and Bergen counties.

Passaic, N. J.—Plans for new drawbridge at Eighth st., Passaic, will be drawn by County Engineer Ferguson in near future, as Passaic and Bergen County Boards of Freeholders have practically decided to erect new span there. Cost about \$50,000.

Troy, N. Y.—At meeting of County Commissioners it was decided to advertise for bids for \$100,000 bonds to be sold July 7, and \$70,000 for bridges and \$30,000 for roads.

Urbana, O.—Two bids have been received for Market street bridge, but both were above engineer's estimate of \$1,300. Patrick Heatherman bid \$1,500 and Sieverling & Fairbairn \$2,800. Work will be readjusted.

Antlers, Okla.—Through efforts of Progressive Club petitions are being circulated over county for bond issue to build three bridges across Kiamichi River that will cost near \$10,000 each.

McMinnville, Ore.—County Commissioners have authorized construction of a 120-ft. steel bridge over Yamhill River.

Portland, Ore.—All bids for construction of proposed reinforced concrete bridge on East Sixteenth st., across Sullivan's Gulch, have been rejected.

Greenville, Pa.—State will rebuild Wasser bridge. It will be of concrete and will cost about \$30,000.

Johnstown, Pa.—Ordinance will be introduced for building of bridge between Minersville and Cambria City, changing that structure from Fifth to Fourth avenue, and providing for vacation of Iron street, from the Cambria City bridge to a point near Hinckston Run.

Williamsport, Pa.—Appropriation committee has agreed to recommend appropriation of \$60,000 for Montgomery bridge, if county will appropriate like amount.

Cleburne, Tex.—Bridge will soon be built across Brazos River connecting Bosque and Johnson counties, if plans of joint committee of citizens of Bosque, Hill and Johnson counties are carried out.

Gainesville, Tex.—County Commissioners' Court of Cooke County has advertised for bids for three new steel bridges to be built on good roads recently completed.

Richmond, Va.—Administrative Board has unanimously voted to close competition and refer all designs, specifications and explanations for proposed new Ninth St. Free Bridge to commission of four, which will judge plans and name winners of \$2,000 prize money offered.

Janesville, Wis.—Postponement of election to determine whether city of Janesville shall issue \$38,000 in bonds to raise funds for construction of new



Stegeman Apparatus on **GOODYEAR** Tires

AKRON, OHIO

The Big majority of manufacturers of high-grade Fire Apparatus endorse Goodyear Tires. Read carefully what the Stegeman Company has to say.

Note the severe test given these tires, and how completely they answered the exacting requirements of FIRE DEPARTMENT service.

The great traction of Goodyear Fire Truck Tires means a quick start—an important feature in motor driven apparatus.

Their Non-Skid properties mean **SAFETY** and **RELIABILITY** when turning corners at high rate of speed.

Their Resiliency and easy riding qualities mean economical operation and an insurance of long life for the apparatus.

Goodyear Cushion Fire Truck Tires

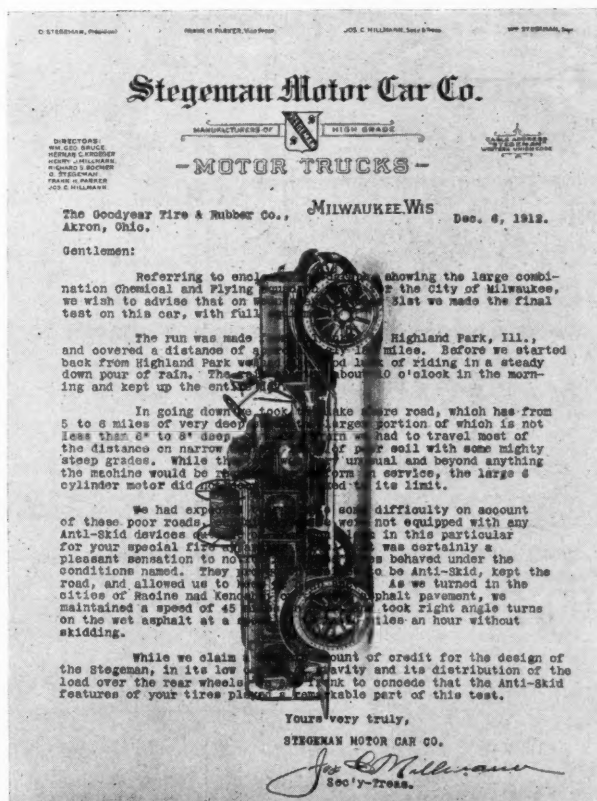
Here is a durable cushion tire nearly as resilient as a properly inflated pneumatic.

Its resiliency is due to patented undercut sides, supported by slantwise bridges.

Takes up, absorbs, a maximum of the destructive jolt and jar incident to high speed and rough roads. Prolongs efficiency of apparatus.

This tire not only resilient and durable, but non-skid.

Guaranteed for three years on Fire Apparatus (Accident and Abuse Excepted).



Stegeman Motor Car Co.

MANUFACTURERS OF HIGH GRADE MOTOR TRUCKS

MILWAUKEE, WIS.

The Goodyear Tire & Rubber Co., Akron, Ohio. Dec. 6, 1912.

Gentlemen:

Referring to envelope showing the large combination Chemical and Flying Machine for the City of Milwaukee, we wish to advise that on Dec. 4, 1912, we made the final test on this car, with full load, on the following road:

The run was made on a road in Highland Park, Ill., and covered a distance of about 10 miles. Before we started back from Highland Park we had a good deal of riding in a steady down pour of rain. The road was very wet and slippery in the morning and kept up the entire day.

In going down the road, which has from 5 to 6 miles of very deep ruts, a large portion of which is not less than 2" to 3" deep, we had to travel most of the distance on narrow wheels. Our car was certainly a pleasant sensation to note. It behaved under the conditions named. They were Anti-Skid, kept the road, and allowed us to make right angle turns on the wet asphalt at a speed of 45 miles an hour without skidding.

While we claim a great amount of credit for the design of the Stegeman, in its low center of gravity and its distribution of the load over the rear wheels, we think to concede that the Anti-Skid features of your tires played a considerable part of this test.

Yours very truly,
J. C. Stegeman
Stegeman Motor Car Co.
Sec'y-Treas.

Goodyear No-Rim-Cut Non-Skid Fire Truck Tires

Goodyears CAN'T rim cut. And rim-cutting ruins 23% of tires of the old-type hooked-base kind.

10% oversize — 10% over-capacity compared with clincher tires.

That means added resiliency to take care of the terrific shocks imposed by fire truck service.

Made with a double thick non-skid tread vulcanized to the regular tread. Keeps the tires from skidding. Also reduces dangers of punctures by one third.

**ASK FOR OUR FIRE
TRUCK TIRE BOOK**

We want every Fire Chief to have one of these interesting books. We can show you how Goodyears will help increase the efficiency of your service and how they will mean reduced tire costs. Let us send this book at once.

THE GOODYEAR TIRE & RUBBER COMPANY, Akron, O.

BRANCHES AND AGENCIES IN 103 PRINCIPAL CITIES.
Main Canadian Office: Toronto, Ont. Canadian Factory: Bowmanville, Ont.

WE MAKE ALL KINDS OF RUBBER TIRES, TIRE ACCESSORIES
AND REPAIR OUTFITS

bridge on Milwaukee st., from July 2, first date announced, to July 8, date set for primary on candidates for Mayor, has been made through passage of resolution by City Council.

Unionville, Ont.—Markham Township Council is considering construction of concrete bridge over river at Locust Hill; estimated cost, \$17,000.

CONTRACTS AWARDED.

Willows, Cal.—Contracts have been let under the \$450,000 Glenn county road and bridge bond issue by supervisors, as follows: Slough No. 2—Steel and concrete bridge on the Marvin Chapel road, contract let to Jenkins & Wells, price \$2,935. Slough No. 3—Marvin Chapel road steel and concrete bridge, contract let to Chico Construction Co., for \$1,645. Slough north of Biggs road on Butte Creek—Steel and concrete bridge, contract let to Chico Construction Co., price \$1,285. Concrete wall and fill on Atwood Grade in Coast Mountains—Contract let to F. W. Toxel for \$970.

Idaho City, Idaho.—For construction of steel bridge over North Fork of Payette River, to Missouri Valley Bridge & Iron Co., of Leavenworth, Kan., at \$9,214.

Waterloo, Ia.—To Millery-Hey Construction Co., contract for new concrete bridge which Waterloo, Cedar Falls and Northern Railway will erect across Black Hawk creek in Westfield at cost of \$25,000.

Garrett, Kan.—For constructing Patton Bridge, a reinforced concrete arch of 75-ft. span and 16-ft. roadway by County Commissioners to C. A. Alexander, of Ottawa, Kan., at \$4,138. C. B. Spradin is County Clk.

Shreveport, La.—For construction of approach of Red River Wagon bridge to F. C. Barbour at about \$10,000.

Baltimore, Md.—By Board of Awards, to Stewart Jones Co. and Claiborne Johnston Co., 901 Calvert Bldg., Baltimore, for masonry work in connection with bridge No. 2, which the Water Department will build across Gunpowder River, near Loch Raven, at \$26,235. E. B. Whitman is Water Engr.

Pittsfield, Mass.—For construction of Lyman st. bridge to E. B. Roberts at \$5,090.

Sutton, Neb.—By County Commissioners at Clay Center to Lincoln Construction Co., of Lincoln, for constructing 70-ft. steel bridge with 24-ft. roadway and concrete abutments at Sutton.

Elizabeth, N. J.—J. Foster Callahan was successful bidder on two contracts awarded. Jobs are erection of bridge in Morris ave., near Carteret st., Linden, and construction of culvert in Wood ave., Linden. In each instance Mr. Callahan's proposal was much lowest of those received. Bids submitted were as follows: Wood ave. culvert—J. Foster Callahan, \$584; Villa Bros., \$740; Wilfred A. Cole, \$708; Ralph Ritter, \$805; Alexander Kerr & Son, \$687; C. M. Meeker,

\$687; Charles E. Callman, \$725. Morris ave. bridge—J. Foster Callahan, \$549; Wilfred A. Cole, \$605; Alexander Kerr & Son, \$867; Charles E. Callman, \$863; C. M. Meeker, \$667; Villa Bros., \$630; W. S. Konover, \$735.50.

Toms River, N. J.—For road bridge across Barnegat Bay, from Island Heights to Seaside Park, to Edw. Fay & Son, of Philadelphia, Pa., at \$95,000.

Urbana, O.—Contract for bridge over town branch in Miami street has been awarded to Patrick Heatherman by Service Director Flaughner, at his bid of \$2,975. Engineer's estimate was \$3,000. One other bid was received, that of Sieverling & Fairbairn, of Springfield, for \$5,500.

Urbana, O.—The Home Engineering & Construction Co. have been awarded the contract for superstructure of new Arrowsmith bridge. Their bid was \$2,897.

Watertown, Wis.—By Board of Public Works for repairing Milwaukee st. bridge. Leschinger & Cowan were lowest bidders on concrete and iron work, and John Bailey was lowest on putting in the floor. Concrete and iron—Leschinger & Cowan, \$2,167; Dornfeld-Kunert Co., \$2,850; E. L. Bartlett, \$2,925. Bridge flooring—F. Behlke, \$2,842.14; C. Huenefeld, \$2,603.88; L. Schlueter, \$2,726.63; John Schatz, \$2,855.38; John Bailey, \$2,486.77; H. Willenbockel, \$2,728.83; W. Rohde, \$2,643.85; H. G. Zickert, \$2,723.14.

MISCELLANEOUS

Stockton, Cal.—Citizens of Stockton will be asked to approve bond issue totaling more than a million dollars at election to be held next September. The money will be utilized in needed improvements. It is proposed to install sewer system at cost of \$600,000, high pressure water system for \$325,000, and new city hall to cost \$350,000.

Willimantic, Conn.—Mayor Dunn has called a special meeting for June 24, to ask for additional appropriation of \$1,200 for oil.

Orlando, Fla.—Movement is on foot for improvement of Lake Eola for park purposes.

Augusta, Ga.—Bids will be received on July 10th by finance committee of city council for third issue of \$250,000 of bonds to carry forward work of building levees.

Morrison, Ill.—Board of supervisors of Whiteside county has decided to build new jail building. Board has voted that new building must not cost more than \$20,000, this to include all expenses pertaining to its erection.

Mount Vernon, Ill.—City Council has passed ordinance calling special election for July 10 to vote on Question of issuing bonds for \$25,000 to purchase park of forty acres.

Winchester, Ky.—Winchester is to have playgrounds this year. The Civic League selected Board of Governors and Finance Committee for playgrounds.

Fall River, Mass.—Order has been passed by Board of Aldermen providing \$2,000 extra for automobiles for Fire Chief and deputy.

Lynn, Mass.—Chief of Police Burckes has stated that two new motorcycles are to be purchased for police department.

Saginaw, Mich.—Purchase of motor car for police department is being discussed.

Chisholm, Minn.—Bids on 200 gallon to 500 gallon road makers' kettles have been rejected.

Jackson, Miss.—Clerk has been authorized to advertise the issuing of \$250,000 public improvement bonds on July 1.

Meadville, Miss.—City will erect a new court-house. Bids for contract are being received.

Billings, Mont.—Bonds have been sold for construction of new county jail.

Westfield, N. J.—Ordinance has been passed to issue \$31,200 in bonds for improvements. Bonds were sold to J. D. Everett & Co., of New York.

Binghamton, N. Y.—Ordinance will be introduced directing City Engineer to prepare plans and specifications for dike on Front st.

Schenectady, N. Y.—Bids will be received at office of City Comptroller until the 30th day of June, 1913, at 11 o'clock a. m., for purchase of \$100,000 garbage disposal bonds, \$500,000 school bonds, \$380,000 sewer bonds and \$300,000 park bonds. John L. Meyers, Comptroller.

Schenectady, N. Y.—Plans are being made for garbage disposal plant at cost of \$25,000.

Schenectady, N. Y.—Bids will be received at city comptroller's office until 11 a. m., July 2, 1913, for the purchase of \$100,000 garbage disposal bonds, \$500,000 school bonds, \$380,000 sewer bonds and \$300,000 park bonds. John L. Meyers, Comptroller.

Dayton, O.—Finance committee of city council has recommended following appropriations from \$800,000 fund obtained by recent sale of emergency bonds: For rehabilitation of sewer system, \$25,000; temporary Fifth st. bridge, \$11,000; repair of streets, \$100,000; health department, \$6,000; improvement of parks damaged by the flood, \$13,500; safety department, \$20,000; waterworks, \$12,000.

Dayton, O.—Councilman Kramer will introduce ordinance at next meeting of city council authorizing Service Director Sebald to advertise for bids for collection, delivery and reduction of garbage.

Lima, O.—Plans for organization of municipal garbage system have been formulated by Service Director Morris. Garbage heretofore has been removed by private collectors.

Portland, Ore.—City Executive Board has rejected all bids for installing cells in city jail. There is only approximately \$3,000 in city jail fund, and lowest proposal for the cells was over \$38,000. City Auditor was directed to advertise for new proposals.



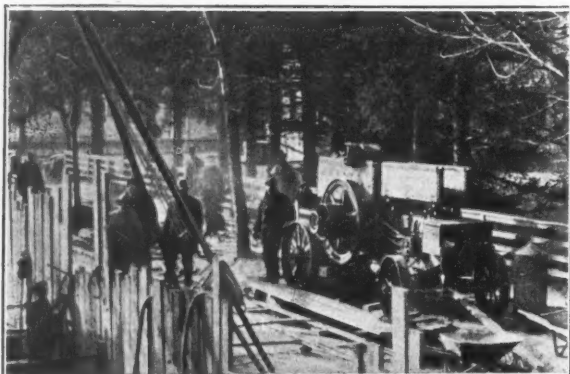
BESSEMER BLOCK

THE MOST UNIFORM SHALE PAVING BLOCK MADE

Makes a Uniform Pavement that is Durable, Sanitary and Always in Repair

BESSEMER LIMESTONE COMPANY, Youngstown, O.

Drilling 200 to 300 Feet Per Day of One to Eight-Foot Holes



And Doing It For \$13.00 Per Day

YOU CAN DO IT IF YOU HAVE AN

ABENAQUE Portable Compressor Outfit

ABENAQUE MACHINE WORKS

79 MILK STREET
BOSTON, MASS.

30 FACTORY STREET
WESTMINSTER STA., VT.

"THE HYDRAMOBILE"

An Automobile Fire Engine Designed for Pumping Purposes

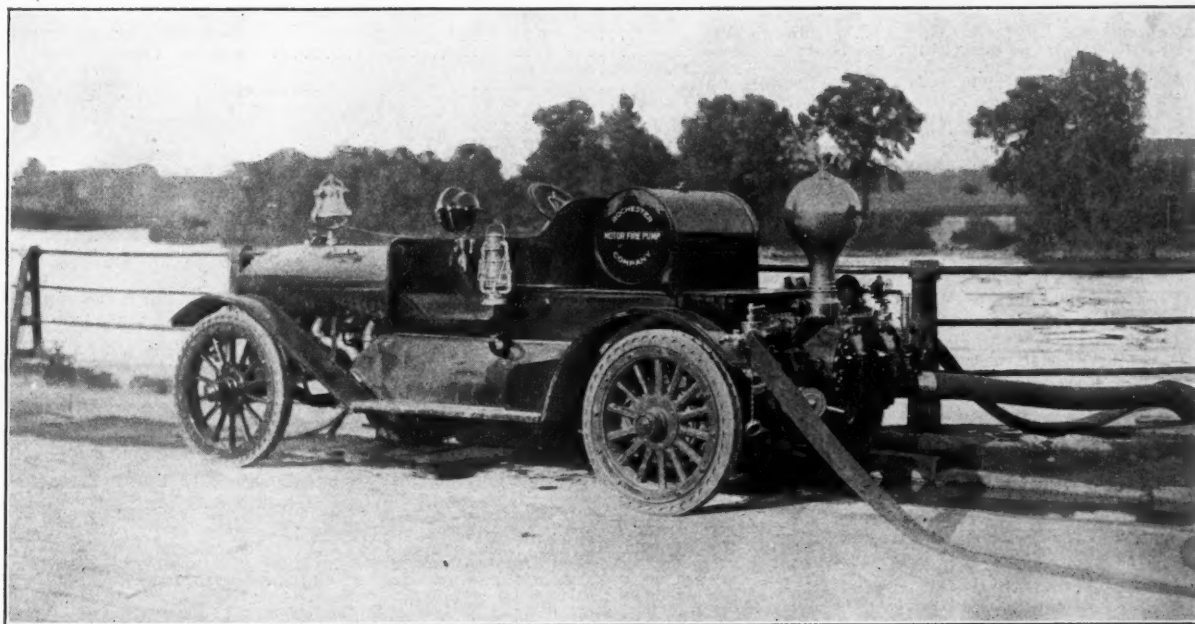


Illustration Shows "THE HYDRAMOBILE" Ready for Action

Superior Points of "THE HYDRAMOBILE"

Its Low Center of Gravity—

Gives "THE HYDRAMOBILE" a distinct advantage over the old, high-built steamers, as well as over the other makes of auto fire engines.

Its Compactness—

With a wheelbase of 124 inches and a total weight of 6784 pounds, "THE HYDRAMOBILE" is the most compact fire engine, of any kind, on the market.

Its Control—

A single lever, operating from the seat, controls the entire mechanism of "THE HYDRAMOBILE."

Its Power—

A motor of 115 *actual* horsepower gives "THE HYDRAMOBILE" a speed of 45 miles per hour on the road and a discharge capacity of 700 gallons per minute while pumping.

Its Pump—

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FOR FURTHER INFORMATION ADDRESS

Rochester Motor Fire Pump Co.

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TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECD UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Col., Denver	June 30	30.. Road, 5 miles; cost, \$8,000	T. J. Ehrhart, Comr. Hwys.	
Vt., Burlington	June 30	30.. Vit. brick	St. Comrs.	
N. Y., Richmond	July 1	1.. Wood block, bit. concrete, sidewalks, etc.	G. Cromwell, Pres.	
Col., Aspen	noon July 2	2.. State highway, 22 miles; cost, \$22,000	Co. Clk.	
N. D., Dickinson	3 p.m. July 7	7.. Paving alleys	R. C. Hill, City Aud.	
Col., Denver	July 7	7.. State highway, 13 miles; cost, \$18,000	T. J. Ehrhart, Comr. Hwy.	
O., Oakwood	noon July 7	7.. Macadamizing	G. B. Keller, Vil. Clk.	
Pa., Chester	10 a.m. July 7	7.. Concrete pavements, 7 streets	Hugh Blair, Chief Burgess.	
Ind., South Bend	7.30 p.m. July 7	7.. Asphaltic concrete	A. T. Perley, Secy.	
O., Cambridge	noon July 8	8.. Vitrified brick, 11,000 yds.	K. M. Cosgrove, C. Eng.	
Va., Norfolk	1 p.m. July 15	15.. Granite blocks, 1,400 tons; curbing, 6,800 feet	W. T. Brooks, C. Eng.	
SEWERAGE				
Pa., York	noon July 3	3.. Vine street sewer	City Engineer Warner.	
O., Cambridge	noon July 8	8.. Vitrified pipe, 13,500 ft., 5 and 8 in.	K. M. Cosgrove, C. Eng.	
N. Y., Binghamton	4 p.m. July 9	9.. Vitrified pipe	F. M. Hopkins, C. Clk.	
Ind., Logansport	10 a.m. July 15	15.. District sewer	Bd. of Pub. Wks.	
WATER SUPPLY				
N. Y., New York	2 p.m. July 1	1.. C. I. pipe, valves, etc.	J. W. F. Bennett, Dep. Comr.	
Neb., Auburn	July 7	7.. C. I. pipe, 640 ft., 4-in.	L. H. Kuper, C. Clk.	
N. Y., Newburg	7 p.m. July 7	7.. Laying 1,600 ft. C. I. pipe	C. Stanton, Supt.	
Ill., Galesburg	July 7	7.. Boilers, two 150 H. P.	W. L. Boutelle, C. Clk.	
Neb., Benkelman	July 8	8.. C. I. pipe, 3 miles, tower, pumps, wells, etc.	Bd. Trustees.	
O., Painesville	July 8	8.. Filter plant, 3,000,000 gals. capacity	S. A. Haskell, Dir. P. S.	
O., Cleveland Heights	July 8	8.. C. I. pipe, 8-in.	H. H. Canfield, Vil. Clk.	
N. Y., Lockport	July 9	9.. C. I. pipe, 12-in.	City Clk.	
Canada, Victoria	July 15	15.. Reinforced concrete pipe, 27½ miles	Comrs.	
O., Rocky River	July 22	22.. Laying mains	F. Mitchell, Vil. Clk.	
FIRE EQUIPMENT				
N. J., Bayonne	July 1	1.. Fire hose, 2,000 ft., 2½-in.	City Council.	
N. J., New Brunswick	July 7	7.. Motor triple comb. apparatus	Fire Comr.	
N. J., Trenton	2.30 p.m. July 9	9.. Fire house	G. B. La Barre, Dir.	
Pa., Wilkes Barre	July 18	18.. Motor propelled steam engine or motor comb. engine	J. G. Schuler, Chf.	
BRIDGES				
La., New Orleans	noon June 28	28.. Concrete bridge	C. Dittman, Ch. Comm.	
Mass., Gloucester	9.30 a.m. June 30	30.. Concrete bridge	M. Kimball, Ch. Comrs.	
Co., Sterling	2 p.m. July 3	3.. Five steel and concrete bridges	T. S. Stockham, Ch. Comrs.	
N. J., Freehold	11 a.m. July 9	9.. Concrete bridge	J. M. Corlies, Dir.	
MISCELLANEOUS				
Ore., Portland	10 a.m. July 1	1.. Auto truck, 5-ton	R. C. Holman, Ch. Comrs.	
N. D., Bismarck	2 p.m. Aug. 9	9.. Automobile tags, 15,000	T. Hall, Sec. State.	

STREETS AND ROADS

Oakland, Cal.—The Central National Bank of Oakland has purchased \$100,000 worth of state highway bonds.

Sacramento, Cal.—State Treasurer E. D. Roberts has opened bids for sale of \$1,200,000 worth of state highway bonds, which are part of \$18,000,000 issue voted in 1910 for construction of system of highways. Following is list of purchasers: The Central National Bank of Oakland, \$100,000; Associated Bank of San Francisco, \$157,000; the First National Bank of Hollister and the Bank of Hollister, \$25,000; the Associated Banks of Salinas City, \$50,000; the California National Bank of Sacramento, \$40,000.

San Francisco, Cal.—Plan for making Geary st. a boulevard to beach has been further advanced by Supervisors when board ordered all paving work completed from First to 33d ayes.

Quincy, Ill.—The Locust and 24th st. and Harrison boulevard drives are shortly to be improved.

South Bend, Ind.—Resolution for boulevarding of St. Louis st. has been approved by Park Board. Resolution approved by board calls for asphaltic concrete with patent curb and gutters for new boulevard.

Augusta, Me.—Larger number of towns

have received appropriations from automobile fund for repair of roads.

Natchez, Miss.—At meeting of Board of Mayor and Aldermen, subject of sprinkling streets with oil was brought up, and it was proposed that advertisement for sealed proposals for minimum car of oil, or 6,000 gallons, be published. This will be for experimental purposes. Sprinkling committee was instructed to confer with Water Works Committee and ascertain whether or not it would be practicable for city to do sprinkling on its own account. Present cost for sprinkling is \$10,780.

Swedesboro, N. J.—Extension of road from Mickleton to Swedesboro is being urged.

Dresden, O.—City Council has voted to pave one mile of Main st., at cost of about \$20,000.

Lorain, O.—Bonds in sum of \$38,000 for street improvements have been sold by City Auditor.

Toledo, O.—Finance committee of Council has approved ordinance providing for \$98,000 4½ per cent. bonds to pay city's share of separation of grade of Lake Shore & Michigan Southern railroad at East Broadway. Entire cost of improvement is estimated at \$279,000 and railroad is to pay difference.

Eugene, Ore.—Macadamizing of Frank-

lin boulevard is being discussed.

East McKeesport, Pa.—Petition is being circulated among residents along Broadway between Greensburg ave. and Coal alley, asking councils to improve that portion of street.

Chattanooga, Tenn.—City has sold to Security Savings Bank & Trust Co., of Toledo, O., bonds in sum of \$5,116.60, known as paving district bonds No. 47.

Chattanooga, Tenn.—Paving of Market st. is being discussed; estimated cost, \$90,000.

Dallas, Tex.—By order of Board of Municipal Commissioners, Wood st. is to be widened for part of distance between Ervay and Akard sts.

Fort Worth, Tex.—Information has been received that Palo Pinto county has practically raised remaining \$10,000 necessary to secure federal appropriation of \$40,000 for post road between Fort Worth and Mineral Wells. County commissioners of Tarrant county will appropriate \$50,000 and Parker county has pledged \$20,000. Added to this \$80,000 will be government appropriation, making total of \$120,000 available for post road.

Gainesville, Tex.—E. B. Blanton, of this city, has closed a deal whereby he purchased \$175,000 worth of good roads bonds issued by Fort Bend county.

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Combination Automatic and Manual Fire Alarm Telegraph Central Office Equipments.



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Progress in the Art of Fire Alarm Telegraphy has been identical with the growth of this company.

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Information and estimates may be obtained from our Agencies and Executive Offices.

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304 Central Bldg., Seattle, Wash.
Utica Fire Alarm Tel. Co., Utica, N. Y.
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30 VESEY STREET, NEW YORK

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A Mixer that Automatically Delivers and Spreads Batch Wherever Wanted

Think of the time, money and labor saved by a mixer that does its own delivering and spreading—*automatically*—without the waste of time and money in having men do it.

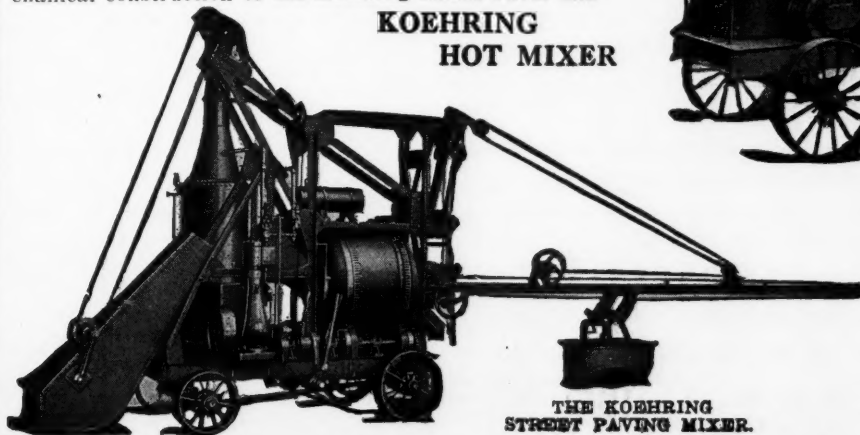
One Man Can Do the Work with a Koehring Street Paving Mixer. It Does All in One Minute

Log boom—20 or more feet—carries bucket to exact spot wanted from side to side; it produces an almost continual flow of concrete from machine to work—a time-saver that means quicker jobs, higher profit and more contracts.

That is not all about the Koehring. The Koehring 3 in 1 principle of mixing means three times as much mixing or an equal amount of mixing in one-third of the time. There are three independent and opposed mixing actions in the Koehring drum producing thoroughness of mixing and rapidity of mixing and a uniformity of mixing, no other mixer equals.

There are also equally important advantages in the mechanical construction of the Koehring Street Paver and

KOEHRING HOT MIXER



THE KOEHRING
STREET PAVING MIXER.

KOEHRING HOT MIXER

Heats, Dries, Mixes
paving material in
four minutes.



The distinctive 3 in 1 mixing motion of the Koehring Mixer produces a fine spraylike circulation of the mass in the drum and this spray coming into contact with the blast of extreme hot air, forced through the drum by a blower, heats every particle in a few moments' time.

Not only is the Koehring Hot Mixer the quickest heater and mixer, but it is most economical in operation and maintenance.

Now, while you think of it, write for our comprehensive Catalogue.

KOEHRING MACHINE COMPANY, Milwaukee, Wis.

South Richmond, Va.—Ordinance has been approved by Acting Mayor W. H. Adams, directing the City Attorney to acquire land on the east side of Cowardin ave., from Porter to Semmes, for the purpose of widening avenue.

Everett, Wash.—Paving of North Colby ave. is being discussed.

Spokane, Wash.—City Council has approved of plans for following improvements: Improving 20th ave., from Madella to Perry st., in three parts, grading estimated at \$3,390; crosswalking and sidewalking at \$2,200, and retaining walls and drainage system, \$3,390; total, \$8,980. Improving Fifth ave., Pittsburg to Helena st., in two parts, grading estimated at \$1,325; sidewalks and crosswalks at \$825; total, \$2,150. Grading and plank curb, walk and pavement on Trent ave., between the east and west Olive st. bridges, estimate \$7,200. Paving Stevens st., Second ave. to Fourth ave., estimate \$8,300.

CONTRACTS AWARDED.

San Mateo, Cal.—By Board of Trustees contract for paving of San Mateo Park to Ralsh Improvement Co. for \$101,775.95.

Marion, Ind.—Contractor Dillard Artis has been awarded contract for construction of cement walks on east side of Washington st., south from 38th. He will be paid 10 cts. for replacing old walks with new and 12 cts. for building walks where none are now.

Marion, Ind.—Contract for oiling city streets has been awarded to Mack Charles at 4 cts. per sq. yd.

Fort Scott, Kan.—By City Council contract for street paving of Broadway, Oak, Marmaton and Sixth sts., job that will total closely \$47,000, to Thogmartin & Gardiner. Bid as awarded provides charge of 40 cts. for extra grading and excavations, per cu. yd., 30 cts. per yd. for curb, and 50 cts. per lin. yd. of combination curb and guttering and \$1.50 for square of brick blocks upon a grout filler and \$1.55 for blocks with asphalt filler.

Grand Rapids, Mich.—For resurfacing Jefferson ave. with bituminous concrete to Carpenter & Anderson at \$12,372.80. The paving of Leonard st. bridge with brick went to McDermott & Cooper for \$8,810.04; the Division alley improvement, G. W. Bunker, \$1,125.35; Thomas st. improvement, Kloote & Son, \$6,480.15.

Saginaw, Mich.—By Board of Public Works contracts for paving to W. N. Sager.

Forest Grove, Ore.—City Council has ordered the paving of 11 blocks in this city, and contract has been let to Linden-Kibbe Construction Co., of Portland, for bituciete pavement at \$1.48 a sq. yd. Only other bidder was Warren Construction Co., with bid of \$2.10 a yd.

Altoona, Pa.—State Highway Department has engaged J. E. Francis, the contracting firm that constructed new state road through Lewistown Narrows, to complete work on Buckhorn road, contract for which was thrown up by H. G. Hinkle, of this city.

Enosburg Falls, Vt.—Contract for cement sidewalks at Enosburg Falls has been awarded to M. A. Bundy, of this city.

Seattle, Wash.—Lowest bid received for paving of 11th ave. W. was that of Elliott Const. Co., at \$28,516.80. Other bids as follows: Union Const. Co., \$30,713; Kuria Case, \$29,916.05; D. H. Trap-hagen, \$31,048.02; Barber Asphalt Paving Co., \$28,773.92; West Coast Const. Co., \$29,911.10; McQuaid & Moore, \$29,565.28.

Snohomish, Wash.—For paving district between First st. and Northern Pacific depot, following bids were opened and read: Cascade Const. Co., Wenatchee and Seattle, \$26,332.22; Washington Paving Co., Tacoma, \$26,674.79; Atlas Const. Co., Everett, \$26,680.63; Walsh & Christensen, Everett, \$26,409, and 2 cts. per yd. maintenance for 5 years. Contract was awarded to Cascade Const. Co. Bids opened for Ave. A improvement are as follows: C. H. Driscoll & Co., Inc., \$5,537.45; William Henry, Snohomish, \$5,313.09; Cascade Const. Co., \$5,458.47; Walsh & Christenson, \$5,414.18. Engineer's estimate, \$5,723.88. Contract was awarded to William Henry. Bids opened for Ave. B improvement as follows: Walsh & Christensen, \$6,757.35; C. H. Driscoll, \$7,205.33; Will Henry, \$7,182.63; Cascade Constr. Co., \$6,814.77. Contract was awarded to Walsh & Christensen.

SEWERAGE

San Francisco, Cal.—Last steps have been taken for construction of Mile Rock sewer outlet.

Eugene, Ore.—Ordinances have been passed calling for bids for complete sewer system in Fairmount. Sewers were ordered laid in alley between Columbia and Agate, between Walnut and Orchard, on 18th st., between Walnut and Fairmount blvd., on Birch st., on 15th st., between Moss and Villard, between Moss and Columbia, between Beach and Agate, between Emerald and Beech, between Onyx and Emerald, and between Onyx and University st.

Eugene, Ore.—Sewer Committee has reported favorably upon sewer in alley between Tenth and Eleventh, from Monroe to Van Buren; also upon sewer in alley between Fifth and Sixth aves., from Blair st. west to Van Buren st.

Farrell, Pa.—Plans are being made for sewage disposal plant.

Sioux Falls, S. D.—Resolutions have been adopted for construction of various sewers. Walter C. Leyse, City Auditor.

Spokane, Wash.—City Council has approved of plans for construction of sewer in alley between Nora and Augusta aves., Ash to Maple st.; estimated cost, \$665.

CONTRACTS AWARDED.

Birmingham, Ala.—By City Commissioners for construction of sewers as follows: Sections 1, 2 and 3, to Southern Asphalt & Constr. Co., at \$70,940, \$26,945 and \$70,052 respectively; Section 4, under network of railroad tracks, was awarded to A. C. Brooks & Co., at \$24,750.

Chariton, Ia.—For constructing storm and sanitary sewers to H. J. Cathroe & Co., of Omaha, Neb., at \$16,049. Other bidders: C. W. Ramsey, Excelsior Springs, Mo., \$19,810; Briggs & Cory, Shenandoah, \$19,044; Lytle Constr. Co., Sioux City, \$20,675, and Brogan & Pitz, Green Bay, Wis., \$18,698.

Grand Rapids, Mich.—For construction of Fourth st. sewer to Verhey & Kloote at \$383.60.

Seattle, Wash.—Lowest bid received for construction of sewers on W. 56th st. was that of C. Cristofaro at \$2,757.30. Other bids as follows: L. Recchia & Co., \$3,133.52; Nelson & Carlson, \$3,762.95; Herbert Young, \$3,384.70; Frasca & Coluccio, \$2,787.07; Dicken & Rightmire, \$2,857.89.

Snohomish, Wash.—Two bids were received for sub-sewer 3-b on Lincoln st: Will Henry, \$3,194.45, and Walsh & Christensen, \$3,352.65. Contract was awarded to former with condition that he use vitrified pipe.

WATER SUPPLY

Marbury, Ala.—Plans are being arranged to lay water works system sufficient to serve city of 3,000 people.

Fort Scott, Kan.—Plans are being considered by City Council and Mayor and Water Board as to operating water plant by electrically driven pump and motors.

Saginaw, Mich.—For purpose of solving problem of suitable water pressure for fire protection water board went on record with its long considered plan of installing new force mains from the east and west side pumping stations, at estimated cost of \$100,000; divided \$65,000 eastern taxing district and \$35,000 western.

Humboldt, Neb.—Proposition to tap springs lying near Humboldt, with view to supplying town with plenty of good water will be put up to voters at special election if plans of number of men are carried out. It will require about \$12,000 to carry through project.

Greenville, Pa.—Modern filtration plant will be installed.

PROPOSALS

SEWAGE PUMPING STATION AND FORCE MAIN.

Bids will be received until 2:30 P. M. on Wednesday, July 2nd, 1913, for the construction of a sewage pumping station, force main, and for the installation of pumping machinery appurtenances in North Ferry Street, Schenectady, N. Y. For particulars address Mr. W. Thomas Wooley, City Engineer and Architect, 447 Franklin St., Schenectady, N. Y.

Board of Contract and Supply,
FRED E. JOHNSON, Secretary.

TO PAVING CONTRACTORS.

Sealed proposals will be received by the Committee on Roads, Assessments and Speedway, of the Board of Chosen Freeholders of the County of Essex, New Jersey, for the laying of granite block pavement on Bloomfield Avenue, between the City line of Newark and the line of the Borough of Glen Ridge. Plans and specifications for this work may be seen at the office of Frederic A. Reimer, County Engineer, Court House, Newark, N. J., and at the office of the State Commissioner of Public Roads, Trenton, N. J. The work will be bid on in two sections, as follows:

Section 1: Between the dividing line of the City of Newark and the Town of Belleville, and running to the Second River at Station 6150, as shown on the profile.

Section 2: Beginning at Station 6150, as shown on the profile, and running to, and ending at, the dividing line between the Town of Bloomfield, and the Borough of Glen Ridge, a distance of about 3,160 feet.

Bidders will bid on either one or both of the above sections, but the bid for each section must be enclosed in a separate envelope, with a certified check in the amount of One Thousand Dollars (\$1,000), drawn to the order of R. W. Booth, County Collector, Essex County, and in addition thereto, each bid on each section must be accompanied by an agreement from a Surety Company to bond the Contractor in the full amount of the Contract price, in case the contract for the work is awarded to him.

The successful bidder on each section will be required to give a bond amounting to one-fifth (1/5) of the contract price of each section, conditioned for the proper maintenance of said road in each section to the satisfaction of the County Engineer and the Board of Chosen Freeholders of the County of Essex, for a period of five years from its completion and acceptance.

The Committee reserves the right to reject any or all bids.

Bids will be received at the rooms of the Board of Chosen Freeholders of the County of Essex, Court House, Newark, N. J., on Thursday, July 10th, 1913, at 10 o'clock A. M., and at no other time or place.

Bids must be addressed to Seymour P. Gilbert, Chairman of the Committee on Roads, Assessments and Speedway, and further endorsed, "Proposal for Paving Section 1 or Section 2 of Bloomfield Avenue, Essex County, N. J."

FREDERIC A. REIMER,
County Engineer.

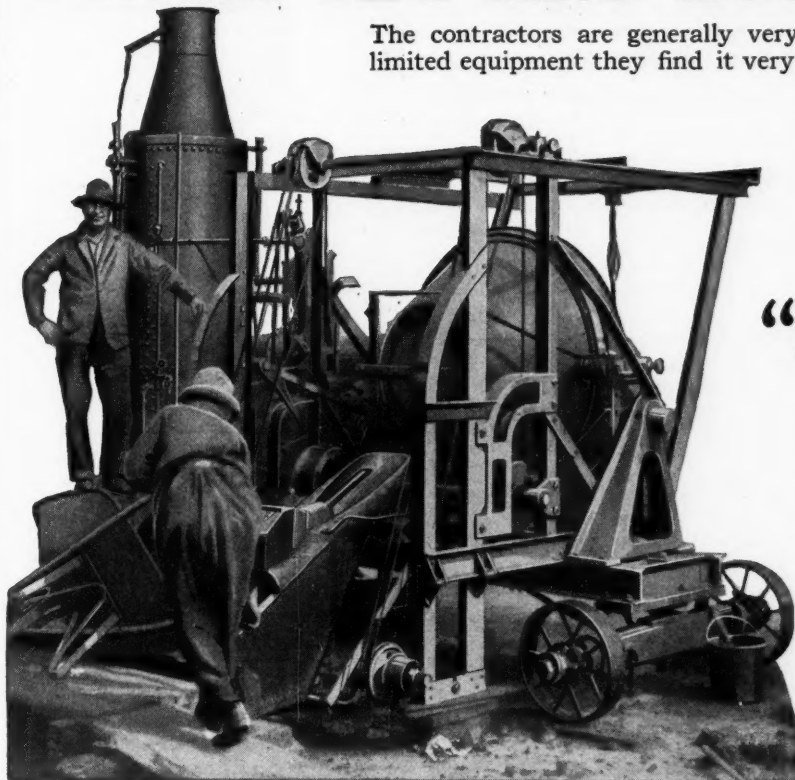
Bids will be received by the Board of Park Commissioners, Arthur P. Perley, Secretary, until July the 7th, 1913, at 7.30 P. M., for the construction of an Asphaltic Concrete Pavement, with a patent concrete curb and gutter on St. Louis Street, in the City of South Bend, Indiana.

INSTALLATION OF SEWAGE PUMP-ING MACHINERY AND APPURTENANCES.

Bids will be received until 2:30 P. M. on Wednesday, July 2nd, 1913, for furnishing and supervising the installation of sewage pumping machinery and appurtenances. For particulars address Mr. W. Thomas Wooley, City Engineer and Architect, 447 Franklin St., Schenectady, N. Y.

Board of Contract and Supply,
FRED E. JOHNSON, Secretary.

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The contractors are generally very busy during the paving season. With limited equipment they find it very difficult, often impossible, to provide the necessary plant, to take care of asphalt repair work on time. To keep its streets in condition, every municipality should be equipped to do its own repair work with a

SMITH "HOT" MIXER

Tear up the old asphalt, melt it, add a little new asphalt and re-lay it good as new. You can save money with one of our portable plants, and, at the same time, satisfy the tax-payers by prompt, careful, durable repair work. This plan has been tried successfully at Pittsfield, Mass.; Memphis, Tenn.; Elmira and Niagara Falls, N.Y.; Milwaukee, Wis., and Venice, Cal. Glad to give you full details. Write for our booklet No. 27.

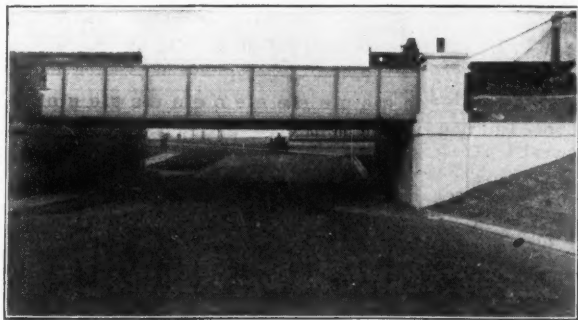
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are considered the hardest test on paving filler, as the incline and tendency to catch and hold water offer a severe strain.



Subway Grade in Chicago

Lewis Improved Coal Tar Pitch Filler

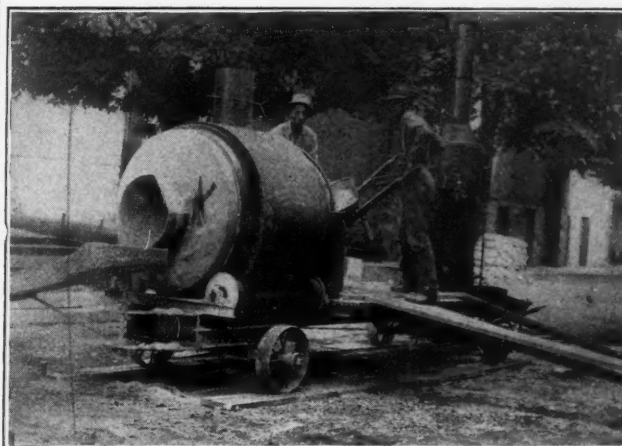
is used on nearly every subway grade under the railroads of Chicago. It has met the test in every instance.

If you anticipate building any granite, brick or wood block pavement, write for further information.

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Get "Independent" prices

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OLD ASPHALT ^{Remelted and Mixed} FOR NEW PAVEMENT

Your Asphalt streets rapidly and cheaply repaired and a permanent pavement produced.

THE RAPID (Heated) MIXER

means a saving of almost 100%. The city of Minneapolis, Minn., laid 60,000 yards 3" Asphalt Macadam pavement with two of our machines without repairs of any kind. THE RAPID MIXER will more than pay for itself in a year in most cities. Write for specifications, prices, etc.

RAPID MIXER COMPANY
84 Porter Block Grand Rapids, Mich.

PROPOSALS

SANITARY INTERCEPTING SEWERS.

Sealed Proposals will be received by the Board of Contract and Supply, of the City of Schenectady, New York, at their office in the City Hall Annex, until 2.30 P. M., Wednesday, July 9th, 1913, for the construction of a 42-inch Sanitary Intercepting Sewer, from Nott Street along Front Street to North Ferry Street, and a 36-inch Sanitary Intercepting Sewer from the Proposed Sewage Pumping Station over private lands and Washington Avenue to near Fuller Street, Schenectady, New York. The approximate estimate of the amount of work to be done is as follows:

- 1a- 6a. 2,930.0 lin. ft. of 42" Monolithic Concrete Sewer.
- 1b- 6b. 2,930.0 lin. ft. of 42" Reinforced Concrete Pipe Sewer.
- 7a. 12a. 2,950.0 lin. ft. of 36" Monolithic Concrete Sewer.
- 7b. 12b. 2,950.0 lin. ft. of 36" Vitrified Pipe Sewer.
- 7c. 12c. 2,950.0 lin. ft. of 36" Reinforced Concrete Pipe Sewer.
- 13. 30 Manholes, complete.
- 14. 5 Tons Cast Iron Pipe.
- 15. 500 lin. ft. of Tile Underdrains.
- 16. 200 cu. yds. of Rock Excavation.
- 17. 500 cu. yds. of Extra Earth Excavation.
- 18. 300 cu. yds. of Extra Earth Filling.
- 19. 100 cu. yds. of Extra Broken Stone Filling.
- 20. 10,000 feet B. M. Lumber for Foundations.
- 21. 20,000 feet B. M. Lumber for sheathing left in place.
- 22. 100 cu. yds. of Extra Concrete.
- 23. 10,000 pounds Extra Reinforcing Steel.

Alternate bids for 42-inch sewer are asked for monolithic concrete and reinforced concrete pipe, and for 36-inch sewer alternate bids are asked for monolithic concrete, vitrified pipe and reinforced concrete pipe.

For further particulars address Mr. W. Thomas Wooley, City Engineer and Architect, No. 447 Franklin Street, Schenectady, New York.

BOARD OF CONTRACT AND SUPPLY.
FRED E. JOHNSON,
Secretary.

FOR SALE

Ten Ton Huber Steam Road Roller with traction engine attachment. Used only two months. Just as good as new. A great bargain.

THE JAMES J. HINDE REALTY CO.
Cleveland, Ohio

NOTICE TO BUILDING CONTRACTORS.

Sealed proposals will be received by the Board of Contract and Supply, of the City of Schenectady, New York, at their office in the City Hall Annex, until 2.30 P. M., Wednesday, July 23d, 1913, for the general construction, plumbing and gas fitting, heating and ventilating and electrical work for the proposed three new schools for the Second, Ninth and Tenth Wards, Schenectady, N. Y.

Plans may be seen and specifications and bidding blanks procured at the office of the City Engineer and Architect, Mr. W. Thomas Wooley, No. 447 Franklin Street, Schenectady, N. Y. Blue Print plans, to a limited number, may be procured by any person so desiring, by depositing with the said Engineer and Architect the sum of \$25.00.

BOARD OF CONTRACT AND SUPPLY,
FRED E. JOHNSON,
Secretary.

NOTICE OF RECEPTION OF PROPOSALS FOR THE INSTALLATION OF A MUNICIPAL ELECTRIC LIGHTING PLANT AND OUTSIDE DISTRIBUTION.

Binghamton, N. Y., June, 1913.

Notice is hereby given that sealed proposals will be received by the Board of Contract and Supply, City of Binghamton, N. Y., until Wednesday, July 16th, 1913, at 4 o'clock in the afternoon for the installation of a Municipal Electric Lighting Plant and outside distribution in accordance with the plans and specifications now on file with the City Clerk of the City of Binghamton.

Copies of plans and specifications can be obtained from Douglas Sprague and Associates, Consulting Engineers, 39-41 Cortlandt Street, New York City, or from John A. Giles, City Engineer, Binghamton, N. Y., for which a deposit of \$75.00 will be required, \$50.00 of which will be returned to parties bidding on such work, and \$25.00 to be returned to all parties not bidding, upon return of plans and specifications to the City Clerk, checks to be certified and made payable to F. M. Hopkins, City Clerk.

All proposals must be directed to Mr. F. M. Hopkins, City Clerk, Binghamton, N. Y., and must be sealed and endorsed on the outside to indicate clearly the contents and must be delivered to the City Clerk on or before the date and time mentioned. No proposals will be received after the hour mentioned.

Proposals must be accompanied by cash, New York draft or certified check in the sum of five per cent. of the amount of such proposal or a bid bond in the sum of twenty-five per cent. of proposal, payable to F. M. Hopkins, City

Clerk, and the party or parties to whom the work shall be awarded shall be required to furnish a Surety Company's bond (said Company doing business in the State of New York) for the faithful performance of the work in the sum equal to fifty per cent. of the amount of said proposal.

The Board of Contract and Supply reserves the right to reject any or all bids should it be deemed to the best interest of the City to do so.

By order of the Board of Contract and Supply.

F. M. HOPKINS,
Clerk.

TO PAVING CONTRACTORS.

City Clerk's Office, Elmira, N. Y.

Sealed proposals for grading, curbing and paving with vitrified block the below named streets, will be received by the undersigned at his office in the City Hall, until 11 o'clock A. M., Monday, July 7, 1913:

ROE AVE.—from west line College Ave. to west line Grove St.

SULLIVAN ST.—from north line E. Church St. to D., L. & W. R. R.

FOX ST.—from south line E. Market St. to north line E. Water St.

Total yardage, about 13,000 square yards.

Plans and specifications are on file in the City Engineer's Office, City Hall, where also may be obtained the "Proposal Blanks" which must be used.

A certified check for \$2,500.00, payable to order of Mayor, City of Elmira, must accompany the bids, which will be returned to bidders upon execution of the contracts.

The Board of Public Works reserves the right to reject any or all bids.

OTIS H. GARDNER,
City Clerk.

TO CONCRETE CONTRACTORS.

Elmira, N. Y.

Sealed proposals for the construction of four plain concrete retaining walls for the approaches of Washington Ave. bridge over Erie R. R. and one wall at Walnut Street bridge, will be received by the undersigned at his office in the City Hall until 11 o'clock A. M., Monday, July 7, 1913.

Plans and specifications are on file in the city engineer's office, City Hall, where also may be obtained the "Proposal Blanks" which must be used in making bids.

A certified check for \$500 for Washington Ave., and \$200 for Walnut St., payable to order of Mayor of City of Elmira, must accompany the bids, which will be returned to bidders upon execution of the contracts.

Envelopes must be endorsed "Proposals for Concrete Retaining Walls."

The Board of Public Works reserves the right to reject any or all bids, and also the right to award two or more walls to the successful bidder.

OTIS H. GARDNER,
City Clerk.

SECOND HAND Transits and Levels FOR SALE

Send for revised list with prices

THE ENGINEERING AGENCY, Inc.
Monadnock Block, CHICAGO



10-inch well sunk for U. S. Quartermaster Department flowing 500 gallons per minute

Edward Christman

Specialist in the Development of

WATER SUPPLY

FROM

ARTESIAN WELLS

We have Special Equipment for sinking wells of large diameter. Preliminary test borings and pumping tests made.

Examinations and reports on well pumping plants.

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Advertise
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The Metropolitan Paving Brick Co.

"Best Paving Block Made"



Quality is Economy

**Highest Quality
Moderate Prices
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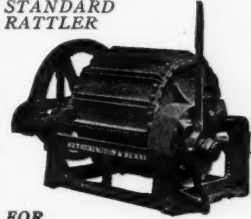
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"Clearfield" or "Standard" Pavers

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N. P. B. M.
STANDARD
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FOR
THE TESTING OF
PAVING BRICK

As we now build this machine it embodies all of the
LATEST IMPROVEMENTS
and refinements of construction that have been found desirable during a period of tryout covering almost one year of time and conducted under the direction of the technical committee of the National Paving Brick Manufacturers' Association.

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Indianapolis, Indiana 3


**WYCKOFF CREOSOTED
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THAT WILL NEVER DECAY

They are healthy, noiseless and wear well under all kinds of traffic. Used in all countries; all climates. We also make Wyckoff Creosoted Wood Conduit, Creosoted Bridge Timber, Cross Ties, Arms, Poles, Etc. Years of test proved that our creosoted materials will not rot.

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FIRE BRICK

ANY SIZE ANY SHAPE

A Special Mix Particularly Adapted to Your Purpose

Write us **NOW** **EVENS & HOWARD FIRE BRICK CO.**
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are superior to repressed brick in density, bonding strength and durability, yet cost no more. Ask for particulars.

Dunn Wire Cut Lug Brick Co., Conneaut, Ohio

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Asbestos goods of every description	J-M Underground Conduit
J-M Asbestos Roofing	J-M Fibre Conduit
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"The Wadsworth" Macadam

KYROCK
KENTUCKY NATURAL ROCK ASPHALT

The Coming Roadway

A roadway on which ground Kentucky Rock Asphalt (containing not less than 7% Bitumen) is used for top dressing in place of screenings. Using "Kyrock" (without heating) as a binder and wearing surface in place of screenings produces the Best Dustless Roadway known on the market.

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THE WADSWORTH STONE & PAVING CO.
PITTSBURGH, PA.

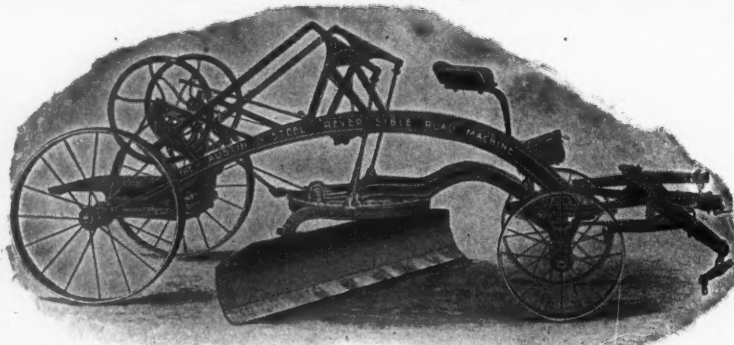
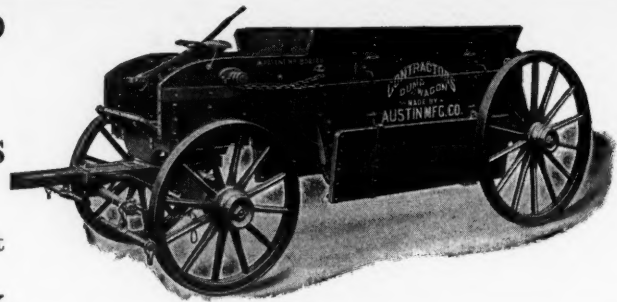
AUSTIN Pioneer Dump Wagon

Sizes—1½, 2, 2½ cubic yards

ITS ADVANTAGEOUS FEATURES

- Its short wheel base means easy draft.
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- Its hingeless bottom doors rising up each side prevent stalling on the dump.

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Austin Reversible Road Grader

Still heads the procession. Its Powerful Arched Frame, Well Balanced Blade Control, and Low Operator's Platform are among its many practical features which have never been equalled or surpassed.

We also build a small grader which can be operated by one man and two horses.
Better write us about it.

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KARPEN BUILDING, 910 SOUTH MICHIGAN AVENUE

SAN FRANCISCO, CAL.; LOS ANGELES, CAL.; SYRACUSE, N. Y.; MEMPHIS, TENN.; ATLANTA, GA.; DALLAS, TEX.; SALT LAKE CITY, UTAH; ST. PAUL, MINN.

FOR ROAD AND STREET WORK This "Low Down" Can't Be Beaten



We are hearing every day from contractors and concrete builders and workers who are using—or have used—our "Low Down" Force-Feed concrete mixer on road and street work. Without exception they tell us the "Low Down" has more than made good for them. It is proving that it is the practical and economically operated machine for this sort of work.

Our "Low Down" is giving great satisfaction everywhere it is in service—it is doing better concrete mixing work than it is possible to secure with the largest and most expensive mixers.

Our "Low Down" mixer is a positively accurate proportioning mixer of the continuous type. It is always reliable. It is a labor saver, for the low hoppers are easy to fill. It is a money saver, because it always mixes properly the cement, sand and stone.

The "Low Down" Mixer operates easily and very simply. The chain elevator acts as a force feed, forcing the stone, sand and cement (wet or dry) into the mixing trough. You can see the feeding at all times. The capacity of this Mixer ranges from 4 to 12 cubic yards per hour, according to the adjustment made. Proportions can be changed while machine is in operation. Power equipment includes gasoline engine driving through gears. The "Low Down" Force Feed Concrete Mixer is designed and built according to proper mechanical principles. Only the best grade of Malleable Iron and Steel is used. The "Low Down" mixer is strong and durable in every way.

Particular features of the "Low Down" mixer include accurate measuring; low down hoppers; chain elevators; mixing paddles always in plain view; mixing and feeding always in plain sight; simple in construction and easy to operate; no frictional devices to wear out; does away with one-fourth the labor of mixing concrete.

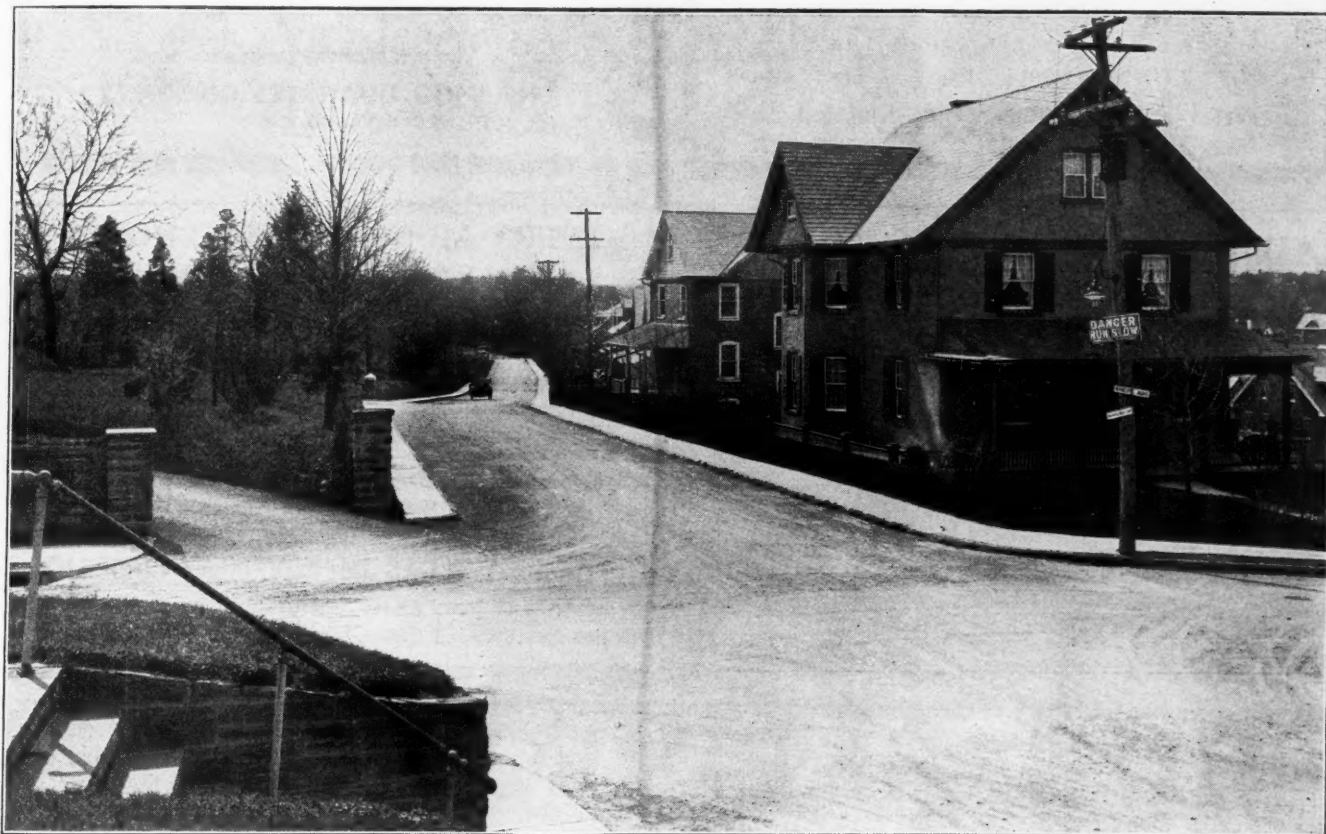
We want to send you our new catalog. It explains "Low Down" operation in every particular—and why the "Low Down" is the particular mixer. Get a copy to-day.

ELITE MANUFACTURING COMPANY, Ashland, Ohio

BERMUDEZ ROAD ASPHALT

"IT STAYS PUT"

Washington Lane Jenkintown near Philadelphia, Pa. Bermudez penetration 1911.



Thousands of Automobiles Use These Roads

Note the wheelmarks of the machines that turn the corners from all directions. There is also considerable heavy hauling at this point. It is the kind of place where, ordinarily, it is impossible to keep the road in even fair condition, owing to the shearing action of the auto wheels.

But this is Bermudez Road Asphalt construction and "*it stays put.*"

The road was built in May, 1911, by the penetration method. It has "stood up" through two summers and two winters.

This photograph was made last month. It speaks for itself.

For the construction of all kinds of roads, town streets and park drives as well as country highways—but particularly for heavy traffic roads—Bermudez Road Asphalt is the one "binder" that assures permanency.

Bermudez Road Asphalt is the only *lake* asphalt binder. That is the reason why of its stability and long life.

This Company's experience gained in the construction of more than 1000 miles of Bermudez Asphalt Roads in all sections of the country is at the disposal of anyone interested in real good-road building.

Ask for a copy of the Bermudez Road Book.

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ASK THE MAN WHO HAS ONE

Our hundreds of satisfied customers are 'convincing proof of the reliability of the

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A PERMANENT Pavement Should Have a PERMANENT Curbing

Northern Ohio Sandstone, commonly called Berea or Amherst Stone, has stood the test for forty years. "Buckeye" is the standard. Specify it. The price is surprisingly low. In the rough or machine dressed.

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To Insure Good, Permanent Roads

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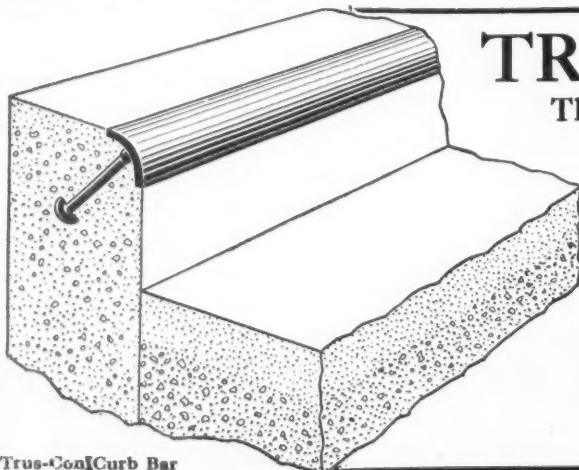
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Made in two standard sizes, heavily galvanized, for protecting concrete curbs, exposed columns, stair nosings, platforms, etc.

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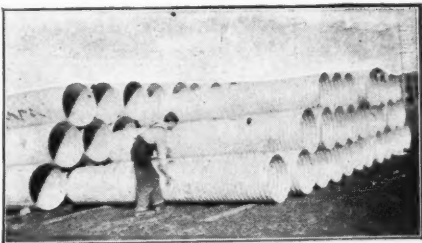


Are you merely tying up your roads with a mechanical binder, or are you tightening them up permanently with glutrin?

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Full Circle, where conditions permit, and Part Circles, set in bases of concrete, where headroom is limited, overcome all difficulties of street drainage.

STRONG

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LIST OF COMPANIES:

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Independence Corr. Culvert Co.
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DIRECT HEAT OR STEAM MELTING

EVERYTHING LARGE CAPACITY

GUARANTEED 2000 Yards two inch top per day
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ALL ON ONE CAR

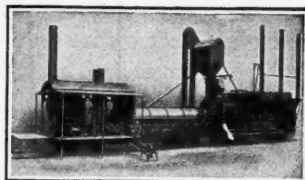
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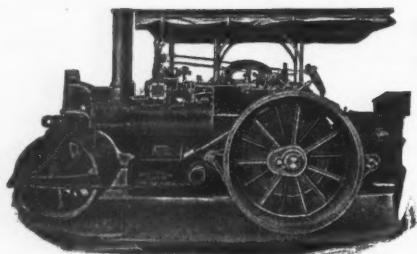
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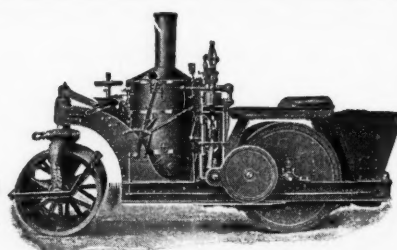
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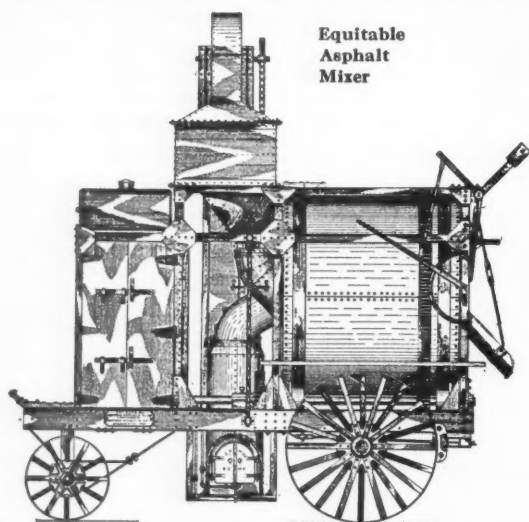
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Put It Where You Want It

That is one of the advantages of the **Equitable Asphalt Mixing Plant**. It can be easily moved to any location to give the shortest haul and the least expense, while at the same time it has the capacity of a railroad plant, mixing from 800 to 1200 yards per day of ten hours, depending on the size.

It will take cold or damp material or old topping and turn out properly heated and melted asphaltic top in 15 minutes.

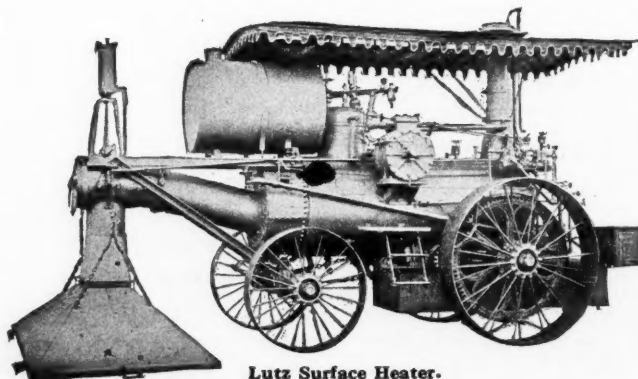
Contractors and municipalities have found that they can do better work at less cost with this machine than by any other method.

Repair Your Streets with the Lutz Surface Heater

It vulcanizes the old and new material into a perfect weld. It makes repairing easy and inexpensive. Our representative will be glad to call personally upon contractors or city officials who are interested in this class of work.

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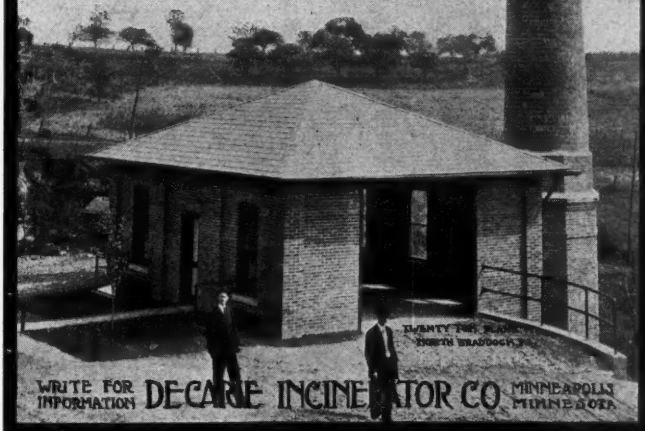
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Sanitary and Economical Disposal of City Refuse by most advanced European Method

The Destructor Co., 111 Broadway, N. Y.

Controlling all U. S. patents and rights of Heenan & Froude and Meldrum Bros., Limited

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Three ft. Rods, 55c. each. Four ft. Rods, 65c. each.
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The only Rods that joint and unjoint easily and quickly and cannot buckle in the duct. Light weight, long runs easily handled, no slack and lend themselves to all practicable bends.

Felton's Improved Couplings for Conduit and Sewer Rods



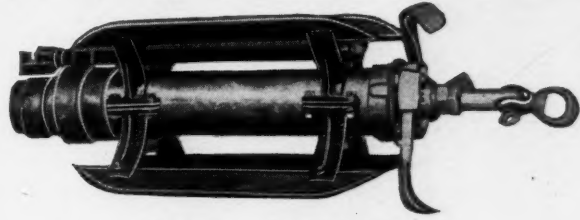
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Ask for our pamphlet and prices.

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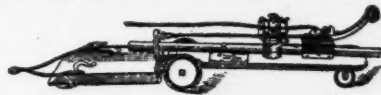
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Cleans Sewers When All Other Means Fail

The Original

HEALEY SEWER CLEANING MACHINE

The First Sewer Cleaning Machine on the Market



You can remove sediment that has become hard and also clear out roots in either brick or pipe sewers in straight sections or on curves

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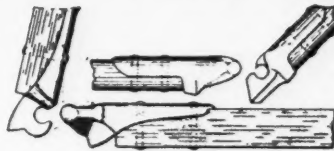
to clean any size or shape sewer regardless of quantity or quality of sediment. We also clean sewers by contract. Write for catalogue.

Healey Sewer Machine & Construction Co.

Park Row Building, New York City

SEWER RODS

The Big
Strong Kind



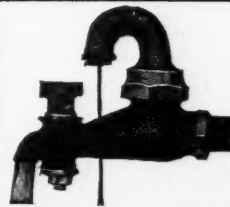
Strong all ways—no weak way like others.

We pay freight and ship for trial. Who else will do it?

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IXL Sewer Flush Tank Regulator

regulates the supply to the tank.

Pays For Itself In One Year.

By its use one city with 23 tanks saves 62,000,000 gallons.

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MILLER

SIPHONS

SEWAGE
DISPOSAL
APPARATUS

No
Other
Just as
Good



Two
Pieces
That's
All

SEWAGE
EJECTORS

SEWER
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JOINTING
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TAYLOR
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For
Flushing Sewers

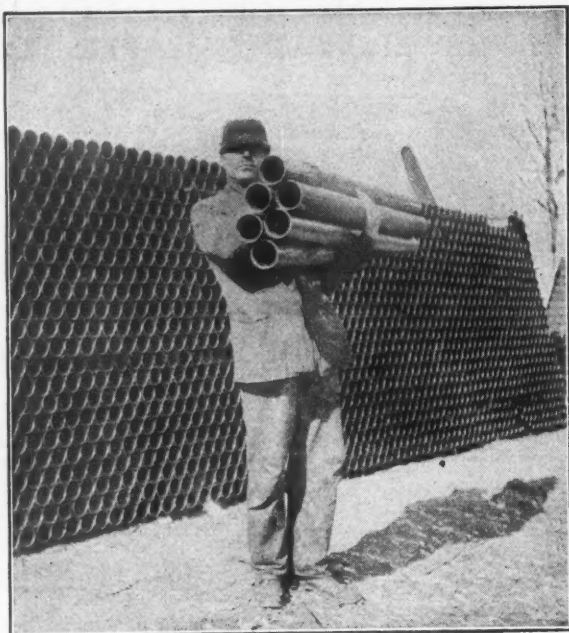
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Chicago

New York

Dr. Carl Imhoff's

Commercial Representative for
Imhoff (Emscher) Tanks



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Orangeburg Fibre Conduit

("Admitted to be the best Fibre Conduit.")

Made in four styles of joints--Socket, Sleeve, Screw and Harrington, with bends and fittings for same. Is the lightest conduit made and means low freight and cartage costs.

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The Fibre Conduit Company

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1741 Monadnock Building, Chicago.
S. B. Condit, Jr., Co., Boston, Mass.
McClary, Jemison Machinery Co.,
Birmingham, Ala.

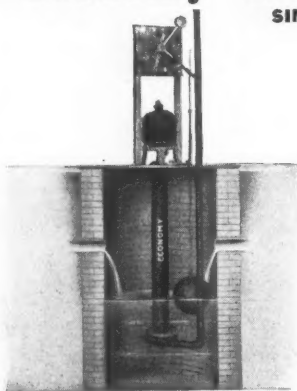
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SINGLE AND DUPLEX UNITS.



Automatic Blige Pump and Ejector

will automatically Eject any Quantity of Sewage at any Head. They are adapted for **Municipal Disposal Plants and City Buildings.** The Economy may be operated by **Electricity, Steam or Gas Engine.**

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Manufacturers
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Sewage Disposal Apparatus
Flush Tank Siphons
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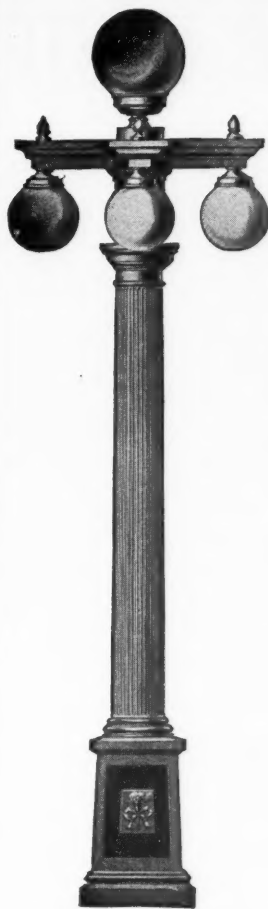
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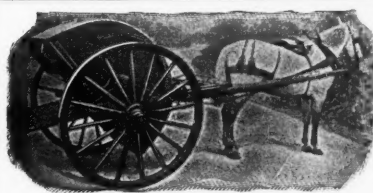
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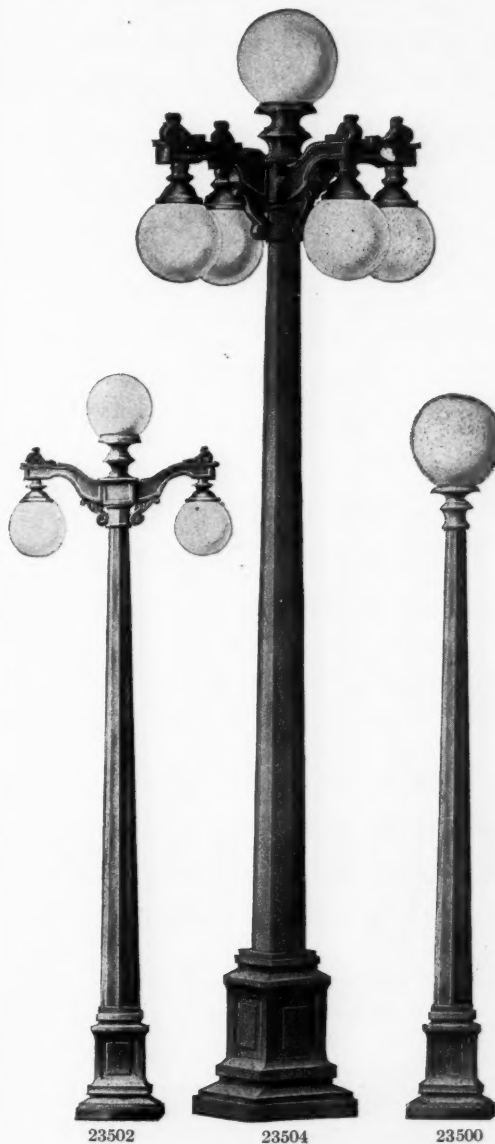
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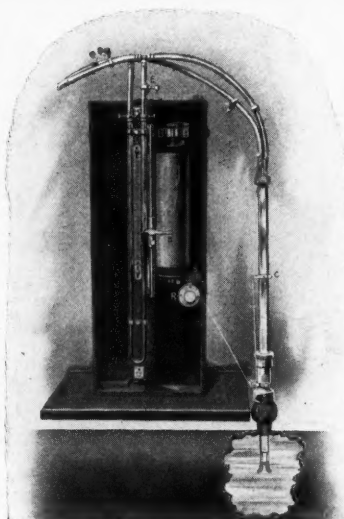
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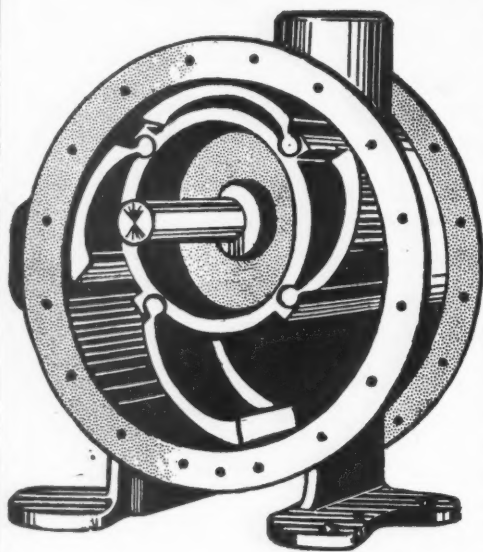
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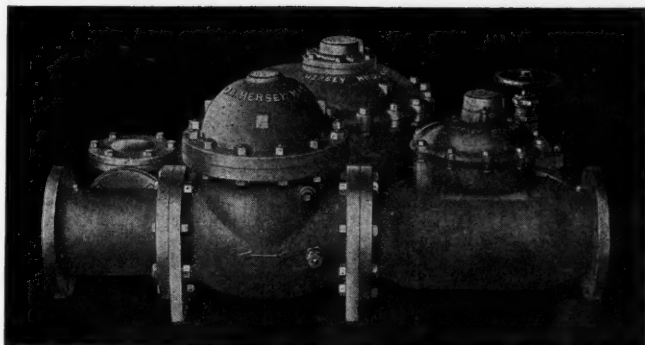
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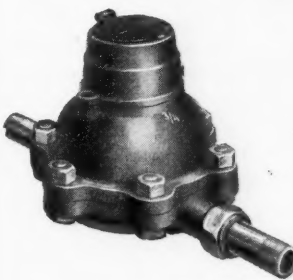
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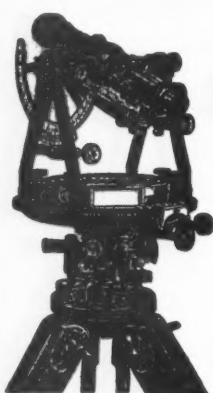
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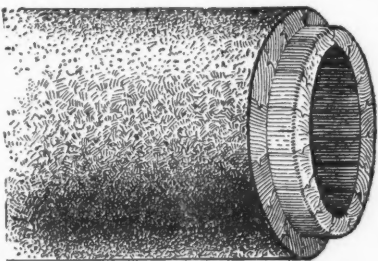
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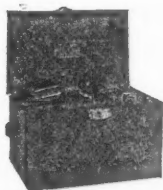
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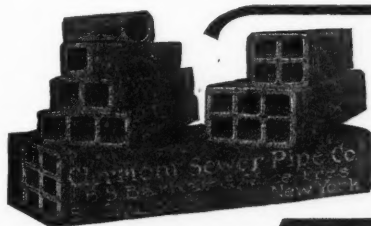
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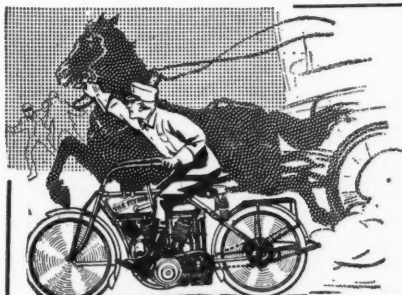
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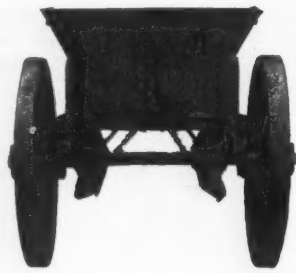
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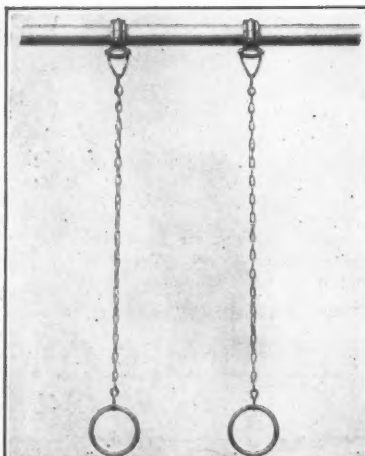
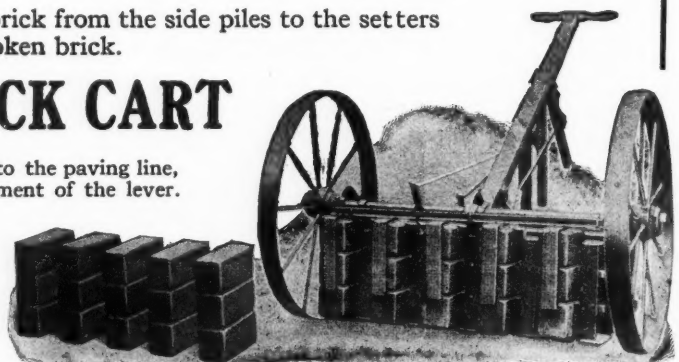
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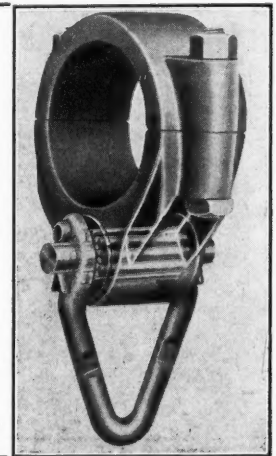
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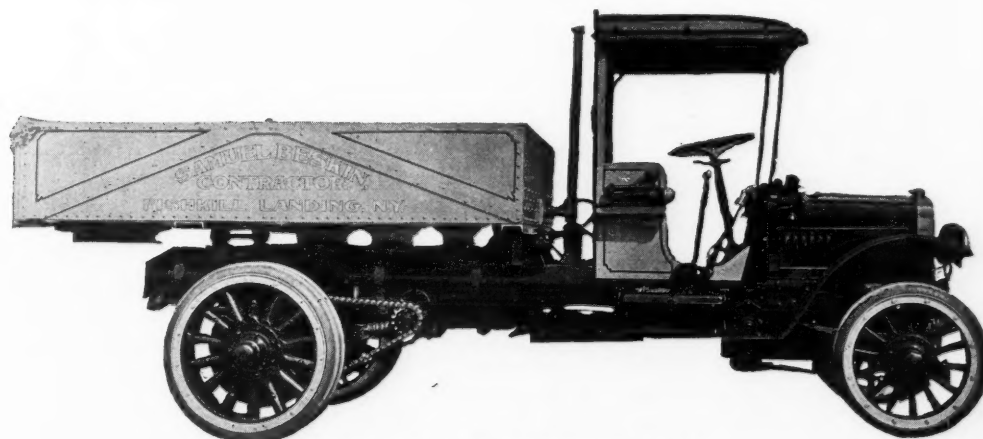
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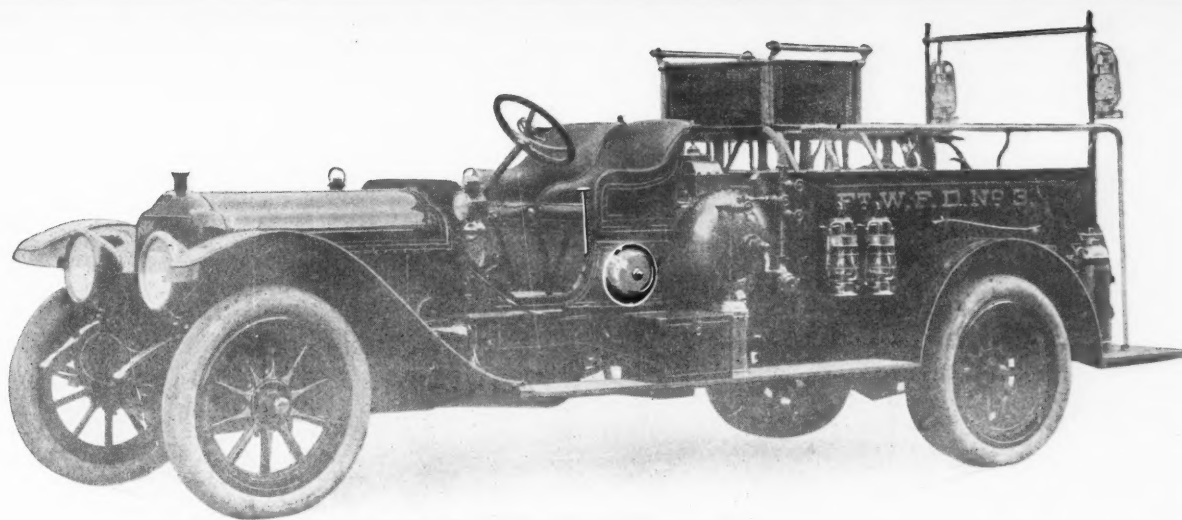
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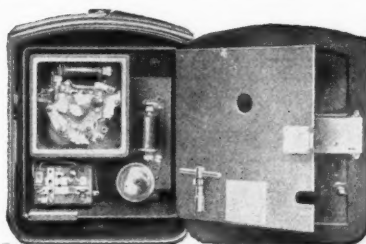
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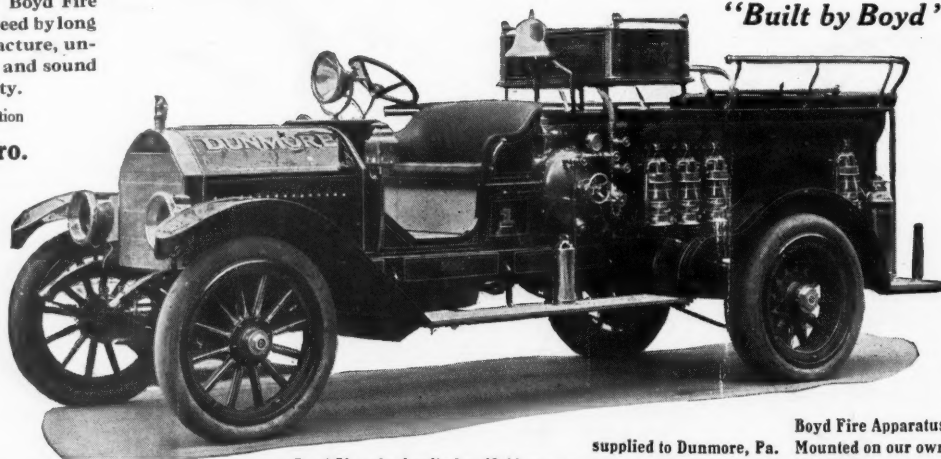
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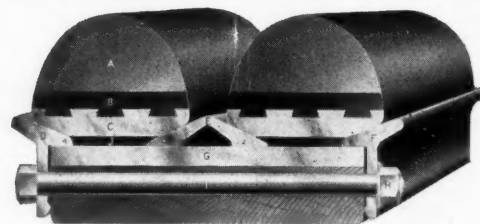
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